EV-S800/S850PS

RMT-425

AEP Model
(EV-S800)

West Germany Model
(EV-S850PS)

SPECIFICATIONS

System

Video recording system	
	Rotary two-head helical scanning
	Helical scanning FM system
Audio recording system	
Normal recording	Standard: Rotary head FM system (monaural)
	PCM: PCM system (2 channels)
Digital multi audio recording	
	PCM system (2 channels, 6 tracks)
Colour system	EV-S800: CCIR system B,G and H, PAL colour
	EV-S850PS: DDR SECAM to PAL colour, convertible
Usable cassettes	8 mm video format casette
Tape speed	SP: Approx. 20.051 mm/sec.
	LP: Approx. 10.058 mm/sec.
Recording or playback time	
	SP: 1 hr. 30 min.
	LP: 3 hr.
	(P5-90)
Fast forward time	Approx. 3 min.

PCM, Digital multi audio system

Sampling frequency	31.25 kHz
Audio frequency	20 Hz–15 kHz
Dynamic range	More than 90 dB
Wow and flutter	Less than 0.005 % RMS

Tuner section

Channel coverage	VHF E2–S20
	UHF E21–E69
Programming system	30 programme-memories
RF output signal	UHF channels E30 to E39 (variable), 75 ohms, unbalanced
Aerial input	75-ohm, asymmetrical serial socket

—Continued on next page—

MICROFILM

8 STEREO VIDEO CASSETTE RECORDER

SONY®

VIDEO

Inputs and outputs

Video input	
VIDEO IN	phono jack 1 Vp-p, 75 ohms, unbalanced, sync negative
Video outputs	
EURO-AV	21-pin (pin 19) 1 Vp-p, 75 ohms, unbalanced, sync negative
VIDEO OUT	Phono jack 1 Vp-p, 75 ohms, unbalanced, sync negative
Audio inputs	
AUDIO IN	Phono jack 47 kilohms, −10 dBs (0 dBs = 0.775 V rms)
Audio outputs	
EURO-AV	21-pin (pins 1 and 3) Output impedance less than 1 kilohms −6 dBs with 10 kilohms load, unbalanced
AUDIO OUT	Phono jack Output impedance less than 1 kilohms −10 dBs with 47 kilohms load, unbalanced
CONTROL L	5-pin DIN
CONTROL S IN	Minijack
CONTROL S OUT	Minijack
Microphones inputs	Minijack −60 dBs, for low-impedance microphone
HEADPHONES jack	Stereo phone jack −20 dBs, 8 ohms

Timer

Clock	Crystal lock
Time indication	24-hour cycle
Timer setting	Only for recording 6 events (3 weeks max. adjustable for any day or for all 7 days of the week)

General

Power requirements	220 V AC, 50/60 Hz
Power consumption	EV-S800: 30 W EV-S850PS: 34 W
Operating temperature	5 °C to 40 °C (41 °F to 104 °F)
Storage temperature	−20 °C to +60 °C (−4 °F to +140 °F)
Dimensions	Approx. 430 × 89 × 328 mm incl. projecting parts and controls
Weight	Approx. 7.3 kg (EV-S850PS) 7.0kg (EV-S800)
Accessories supplied	75-ohm coaxial cable for TV connection (1) Connecting cord RK-74H (1) Screwdriver (1) Remote Commander RMT-425 (1) Sony battery SUM-3 (NS) (3) Feet (5)

Design and specifications subject to change without notice.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

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SECTION 1
GENERAL

1-1. PRECAUTIONS

On safety

- Before operating, check that the operating power voltage and frequency of the unit are identical with those of your local power supply.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the mains outlet if it is not to be used for an extended period of time. To disconnect the lead, pull it out by the plug. Never pull the lead itself.
- The unit is not disconnected from the mains (ac power source) as long as it is connected to the mains outlet, even if the unit itself has been turned off.

On installation

- Allow adequate air circulation to prevent internal heat build-up. Do not cover the holes on the top panel.
- Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation slots.
- Do not install the unit near heat sources such as radiators or air ducts or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- The unit is designed for operation in a horizontal position. Do not install it in an inclined position.
- Keep the unit and cassette tapes away from equipment with strong magnets, as for example a microwave oven or a large loudspeaker.
- Do not place any heavy object (over 13 kg or 28 lbs 10 oz) on the unit.
  Never place any object on the tuning compartment nor on the top of the front panel.

On operation

- When the unit is not in use, turn the power off to conserve energy and to extend its useful life.
- Remove and store video cassettes after recording or playback.

On cleaning

Clean the cabinet, panel and controls with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution.
Do not use any type of solvent, such as alcohol or benzine which might damage the finish.

On repacking

Do not throw away the carton and packing materials. They make an ideal container in which to transport the unit. When shipping the unit to another location, repack it as illustrated on the carton.

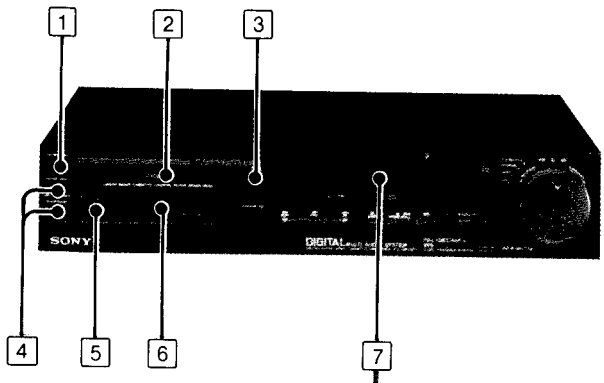
On cassette care

Store cassettes in their cases and keep them in an upright position to prevent intrusion of dust and uneven winding.

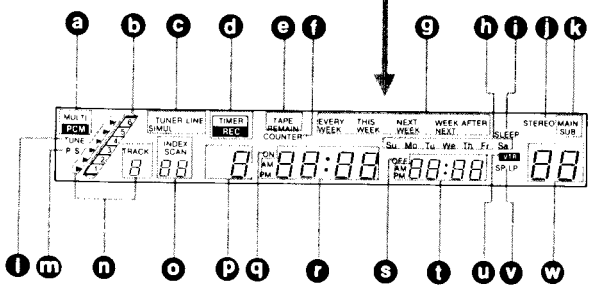
If you have any questions about this unit, contact your Sony dealer.

1-2. LOCATION AND FUNCTION OF CONTROLS

A-1



A-2



A-1

1 ON/STANDBY switch and lamp

2 Cassette holder (Page 17)

3 OPEN/CLOSE button (Page 17)
Press to slide out the cassette holder. Press again to slide it in.

4 HEADPHONES jack (stereo mini type) and PHONE LEVEL control
Connect stereo headphones (with stereo mini jack) here. Adjust the volume with the PHONE LEVEL control.

5 REMOTE SENSOR

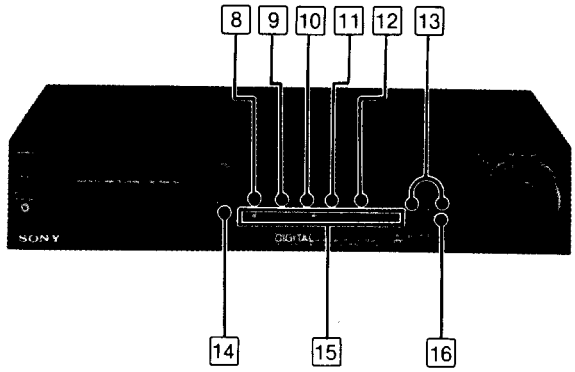
6 PEAK PROGRAM METER (Page 26)
Shows the peak input levels of the right and left channels during recording and recorded levels during playback.

7 Display window

A-2

- ⓐ MULTI PCM or PCM indicator
- ⓑ Digital multi audio tracks indicator
- ⓒ Input signal indicator
- ⓓ TIMER REC indicator
- ⓔ TAPE REMAIN indicator
- ⓕ COUNTER indicator
- ⓖ Week indicator
- ⓗ Day of the week indicator
- ⓘ SLEEP indicator
- ⓙ STEREO indicator
- ⓚ Bilingual indicator
- ⓛ TUNE (tuning) indicator
- ⓜ P (Parallel) or S (Series) digital multi audio timer recording indicator
- ⓝ Digital multi audio track number and indicator
- ⓞ INDEX indicators
- ⓟ Timer programme position
- ⓠ Turn-on time setting indicator
- ⓡ Turn-on time of a timer recording/Tape counter/Tape remain indicator
- ⓢ Turn-off time setting indicator
- ⓣ Turn-off time of a timer recording/clock display
- ⓤ VTR indicator
- ⓥ Recording speed indicator
- ⓦ Programme number

A-3



A-3

8 COUNTER/REMAIN button (Page 24)
Each time the button is pressed, the COUNTER and the TAPE REMAIN indicators are displayed alternately.

9 COUNTER RESET button (Page 24)
Press to reset the tape counter to "0000".

10 GO TO ZERO button (Page 25)
In stop mode, press to advance or rewind the tape approximately to the counter "0000".

11 INDEX button (Page 30)
Used for the index scan or index search operation.

12 ANT TV/VTR button
Press to view the programme selected on the recorder. The VTR indicator appears in the display window (VTR mode).
To view a TV programme while recording another, press this button again.
The VTR indicator disappears. (TV mode)

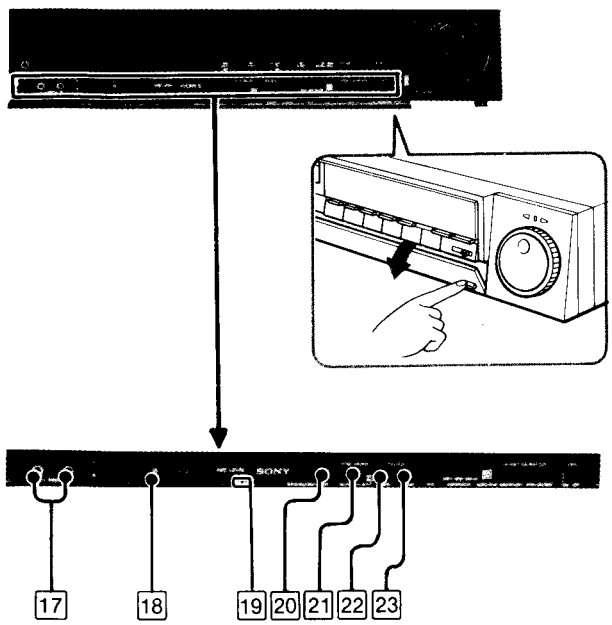
13 PROGRAM/TRACK/INDEX buttons
Press to: —change the programme
—change the track for digital multi audio recording/playback
—change the index number

14 SYNCHRO EDIT lamp (Pages 40–43)
Lights up when SYNCHRO EDIT inside the front panel is pressed.

15 Tape transport buttons and indicators
◀◀ REW (rewind)
▶ PLAY (playback)
▶▶ FF (fast forward)
■ STOP (stop)
II PAUSE (pause)/▶|◀ STILL (still)
x2 (double speed playback)

16 ● REC (recording) switch
Slide to the right to start recording.

A-4



Inside the front panel

A-4

17 **MIC (microphone) jacks** (L, R) **(mini type)** (Page 44)
To record from these jacks, display LINE by pressing INPUT SELECT.

Connection of the microphone and the track to be recorded

Track / Micro-phone jack	PCM track		Standard track
	L channel	R channel	
L	Microphone sound	Microphone sound	Microphone sound
R		Microphone sound	Microphone sound
L and R	1) Micro-phone sound of the L jack	2) Micro-phone sound of the R jack	1) and 2)

18 **REC LEVEL controls** (Page 26)
Slide to adjust the level of the PCM audio recording.

19 **SYNCHRO EDIT button** (Page 38)
Press to start the playback on this unit and the recording of the connected VTR (or vice versa; recording on this unit and playback on the other VTR). When pressed, SYNCHRO EDIT lamp lights up.

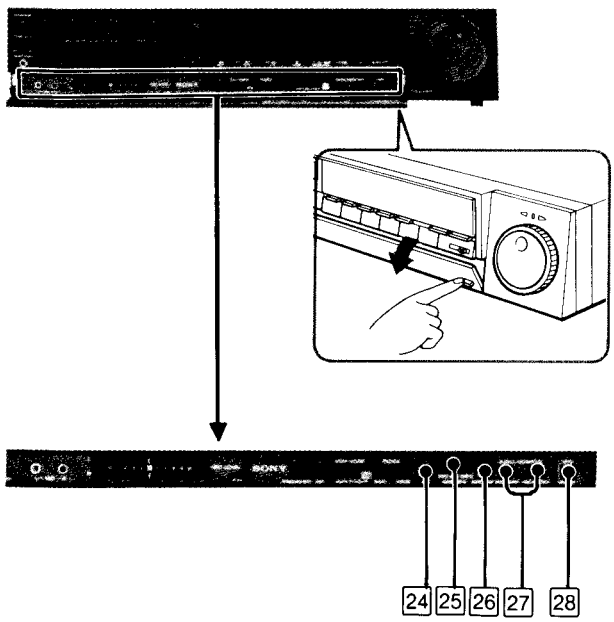
20 **EDIT button and lamp**
Normally keep the lamp off.
When editing a tape onto another recorder (or vice versa), press the button so that the lamp lights up.

21 **PCM MODE selector** (Page 25)
Select the method of PCM audio recording.
Set to: **NORMAL** for normal recording on the PCM track.
DIGITAL MULTI P (parallel) for timer recording from the beginning of each track.
DIGITAL MULTI S (series) for continuous timer recording in one of six tracks.

22 **INDEX MARK button** (Page 29)
Press to mark an index signal at the desired point during recording or playback.

23 **INDEX ERASE button** (Page 32)
To erase a pre-recorded index signal, locate the index signal and press this button.

A-5



A-5

24 **PFS** (Picture Fine Select) **button and lamp**
Normally, keep the lamp off.
If the playback picture of a tape recorded on other VTRs (which do not use the four-video heads system) is distorted or has streaks, press so that the lamp lights up.

25 **SHARPNESS control**
Use to adjust the sharpness of the picture if necessary. Normally set the control at the center detent position.

26 **AUDIO DUB button** (Page 44)
Press to start recording on the PCM track of any recorded video tape.
Set PCM MODE 21 to NORM.

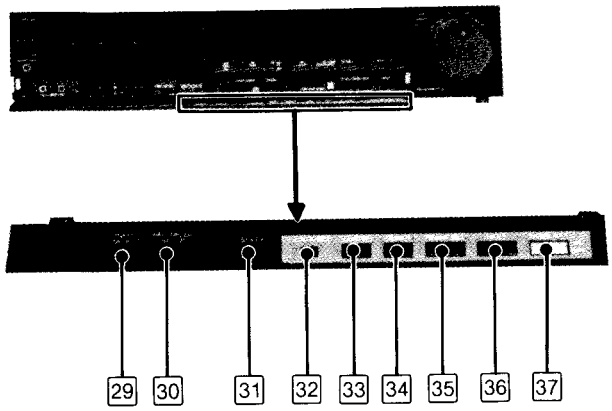
27 **AUDIO MONITOR selectors** (Page 21)
During playback or recording, set to the appropriate position to monitor the desired sound.

MAIN/SUB/M. S selector
When monitoring bilingual programmes or playing back a bilingual tape, press to display:
MAIN: to listen to the main language
SUB: to listen to the sub language
MAIN. SUB: to listen to the main language from the left speaker and the sub language from the right speaker.
A stereo tape with a pilot signal (the STEREO indicator appears) is played back in the stereo mode regardless of the position of this selector.

PCM/MIX/STD selector
PCM: to play back the sound on the PCM track. When nothing is recorded on the PCM track, the sound recorded on the standard track is played back regardless of the position of this selector.
MIX: to play back the sound on the PCM and standard tracks simultaneously.
STD: to play back the sound on the standard track.

28 **VPS** (Video Programme System) **switch** (EV-S850PS only) (Page 36)
Set to ON to activate the VPS in the timer recording.

A-6



On the front panel

A-6

29 **INPUT SELECT button**
Press to display the desired input signal indication in the window.
TUNER: to record TV programmes
SIMUL: to record TV programmes and signals from the AUDIO IN jacks.
LINE: to record audio/video signals from the AUDIO IN/ VIDEO IN jacks on the rear panel or to dub only audio signals from AUDIO IN or MIC jacks.

30 **REC MODE selector**
This selects the recording speed, SP or LP. The recording time of any given cassette in the LP mode is 2 times that in the SP mode.
The playback speed is automatically set regardless of the setting of this selector.

31 **SLEEP button** (Page 37)
Press to preset the turn-off time of this VTR. Playback or recording can be stopped with this timer.

32 **CLOCK SET button** (Page 16)
Press as the first step to set the internal clock.

33 **CHECK button** (Page 34)
Press to check the contents of the timer presettings.

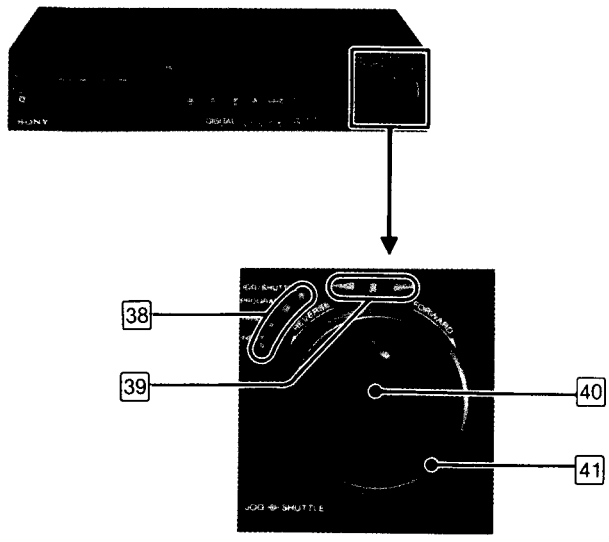
34 **CLEAR button** (Page 34)
Press to cancel a timer setting.

35 **TIMER SET button** (Pages 33,34)
Press to start the setting or resetting of timer programmes.

36 **NEXT button** (Page 33)
Press to advance to the next item to be set when setting the timer or the clock.

37 **TIMER REC ON/OFF button** (Page 33)
Press after programming VTR for timer recordings so that the timer activates. To deactivate the timer, press again.

A-7



A-7

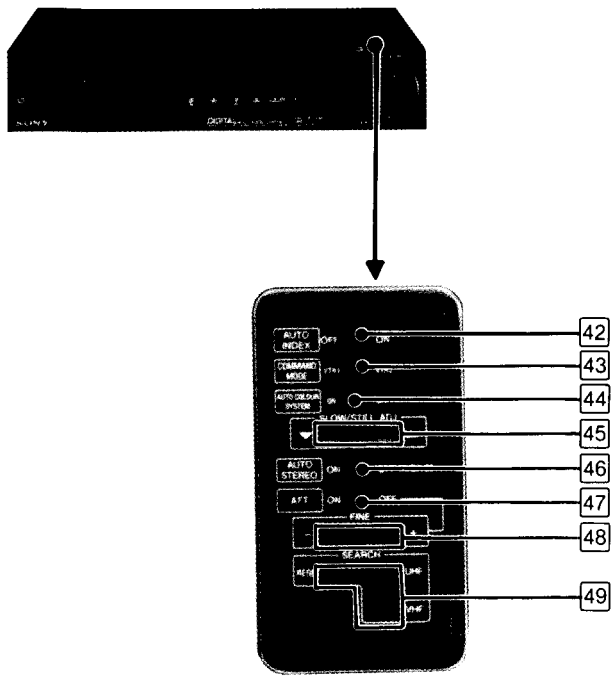
38 **JOG dial function indicators** (Page 23)
Light up to indicate for what purpose the JOG dial is being turned.
JOG/SHUTTLE: when the tape is being played back at the desired speed.
PROGRAM: When the TV programme or digital multi audio track is being selected.
TIMER: When the timer or clock is being set.
INDEX: When the index operation is being made.

39 **Playback indicators** (Page 23)
Indicate the forward or reverse movement or the pause mode of the tape during playback.

40 **JOG dial** (Page 23)
Turn to select programmes.
When this is turned during the playback pause mode, the picture will be played back at a speed according to the speed you are turning the dial. (From frame-by-frame to normal speed.) This dial is also used for setting the clock, presetting timer recordings, selecting any of the 6 digital multi audio tracks and for setting INDEX numbers.

41 **SHUTTLE ring** (Page 23)
When this ring is turned and held during the playback pause mode, you can play back the tape at various speeds: 1/5 normal speed, normal speed or double speed. The more it is turned, the faster the playback will be and when fully turned, the unit enters the "Picture search" mode in the right or in the reverse direction.

A-8



A-8

Upper compartment

42 **AUTO INDEX switch** (Page 29)
Normally set to OFF. To activate automatic marking of index signals during digital multi audio recording, set to ON.

43 **COMMAND MODE selector** (Pages 39,356)
To remotely control this unit with the supplied Remote Commander, set this selector to the same position as that on the Remote Commander.
When editing tapes, switch to the appropriate position accroding to the connection you have made.

44 **AUTO COLOUR SYSTEM switch** (EV-S850PS only)
Normally set to AUTO. According to the TV programme, colour system will be switched automatically to PAL or DDR SECAM.
If the signal is too weak or the picture is distorted, set the switch to PAL. DDR SECAM programmes will be displayed in black and white.

45 **SLOW/STILL ADJ (adjust) buttons** (Page 22)
Adjust the still or slow-motion picture if necessary.

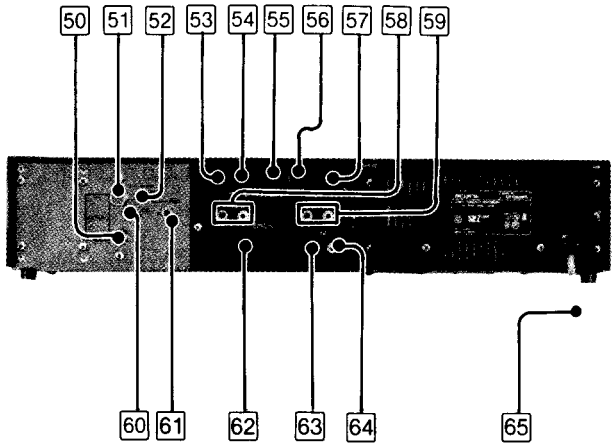
46 **AUTO STEREO switch**
Normally set to ON. During a stereo broadcast, the mode is automatically set to stereo. If there is too much interference, set the switch to OFF in which case all the TV programmes will be received in monaural.

47 **AFT switch**
Normally set to ON. The automatic fine tuning circuit locks in and maintains a sharp picture.

48 **FINE buttons** (Page 16)
When the AFT switch is set to OFF, press to fine tune the station.

49 **SEARCH buttons** (Page15)
Press RESET to clear the programmed station. Press UHF or VHF to tune in a station of higher frequency.

A-9



A-9

Rear

50 AERIAL OUT socket
Connect the aerial input of the TV receiver.

51 AERIAL IN socket
Connect the aerial cable.

52 TEST SIGNAL switch (Page 15)
Set to ON to obtain a test pattern.

53 CONTROL S IN jack (mini type) (Page 42)
Connect to the CONTROL S output jack of other Sony products.

54 CONTROL S OUT jack (mini type)
Connect to the CONTROL S input jack of other Sony products.

55 DIGITAL MULTI PLAY selector
Normally set to AUTO.
The playback mode will be automatically set to the digital multi audio mode. If no sound is heard when playing back a tape recorded on another VTR, set to MULTI.

56 MASTER/SLAVE selector (Page 39)
When editing a tape using the CONTROL L connector, set to either position:
MASTER: to control other equipment connected by the CONTROL L connector.
SLAVE: to be controlled by other equipment (such as RM-E100V editing controller) having control L connector.

57 CONTROL L (5-pin) connector (Pages 40,41)
Connect to the CONTROL L or REMOTE connector of other Sony products.

58 AUDIO IN (L,R) (input) jacks (phono type)

59 AUDIO OUT (L,R) (output) jacks (phono type)

60 LOCAL/DX switch
Normally set to DX. If the TV signal is very strong, set the switch to LOCAL.

61 RF CHANNEL screw (Page 15)
If there is interference on the factory-preset channel for RF output and the output signal from this unit cannot be displayed clearly on the TV screen, adjust the screw with the supplied screwdriver.

62 EURO-AV connector (21-pin)
Connect to the 21-pin connector of a VTR or a TV/monitor, or to the audio/video input and/or output of these units with an appropriate connecting cable.

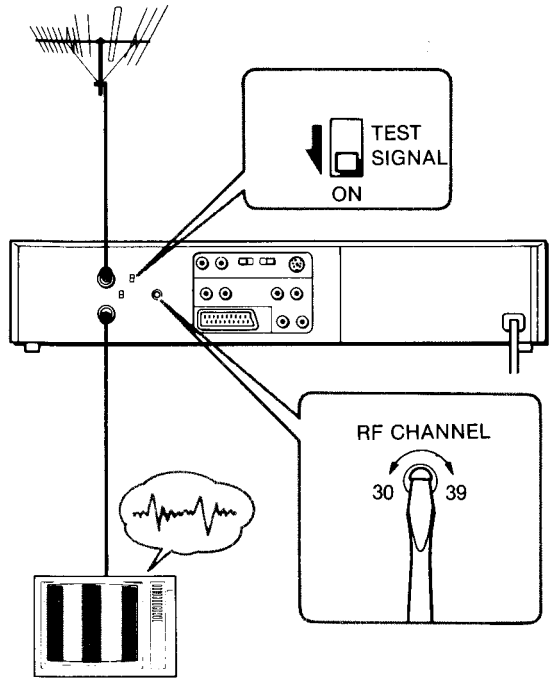
63 VIDEO IN (input) jack (phono type)

64 VIDEO OUT (output) jack (phono type)

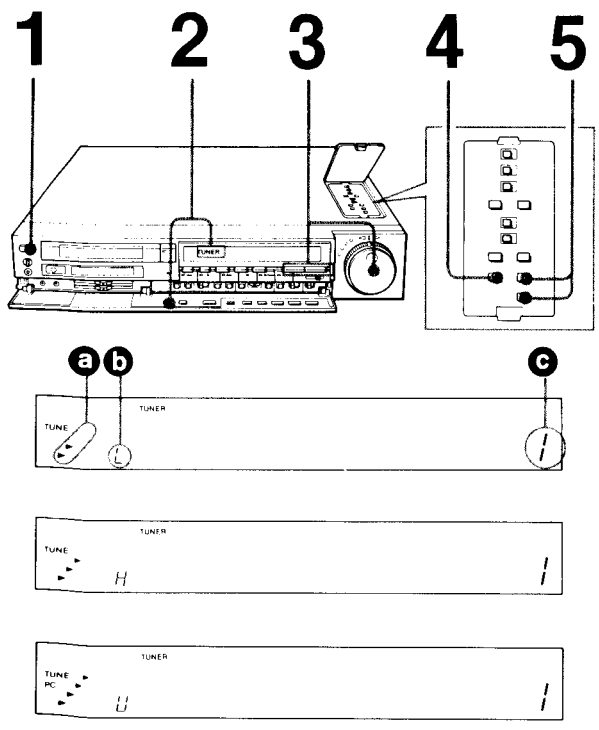
65 AC power cord (mains lead)
Connect to an ac (mains) outlet.

1-3. ADJUSTMENTS

B-1



B-2



ADJUSTING THE TV B-1

One of the television programme positions must be adjusted to receive the signal from the recorder.
Note that the adjustment is not necessary, however, when the VTR is connected to the AUDIO/VIDEO inputs on the TV/monitor.

1 After making the connections, press ON/STANDBY.
2 Make sure that the recorder is in the stop mode and the TV is in TV mode.
3 Set TEST SIGNAL at the rear of the recorder to ON. The test signal is transmitted on a channel between UHF channels 30 and 39.
4 Turn on the TV and select a programme position which is not being used to receive a TV station. Tune the channel until you see a clear black and white pattern on the TV screen and you hear a continuous tone. This is the recorder's test signal.

If the test picture is free of disturbance, the TV adjustment is complete. Set TEST SIGNAL to OFF.

If the test picture is not free of disturbance,

1 Reset TEST SIGNAL to OFF.
2 Adjust the channel of the TV to a channel between UHF channels 30 and 39 with the tuning control or the fine tuning control on the TV, so that the TV screen shows no picture and so that a steady rustling sound or no sound heard.
3 Set TEST SIGNAL to ON again.
4 Slowly turn RF CHANNEL on the rear of the recorder with the supplied screwdriver, until you see an undistorted test pattern on the TV screen.
5 Now the TV adjustment is complete. Reset TEST SIGNAL to OFF.

If you are not sure how to adjust your TV refer to the TV's instruction manual or consult your dealer.

PROGRAMMING TV STATIONS B-2

Up to 30 programmes receivable in your area can be preset on this unit.
Once preset, you can select TV programmes by turning the JOG dial or pressing the +/– buttons.

1 Turn on the unit.
2 Display "TUNER" by pressing INPUT SELECT.
3 Turn the JOG dial or press PROGRAM/TRACK/INDEX + or – to select the programme position (0 to 30) on which the desired TV programme should be tuned in. ⓒ
4 Press RESET in the upper compartment to clear the factory preset programmes.
5 Press UHF or VHF to search stations.
The tuning indicators in the window show the approximate location of the current channel. ⓐ
(ⓑ: Band indicator)
Each time a station is received, the search stops.
Press UHF or VHF again until the desired station is tuned in.
Repeat steps 3 to 5 for all the desired stations.

To cancel an unused programme

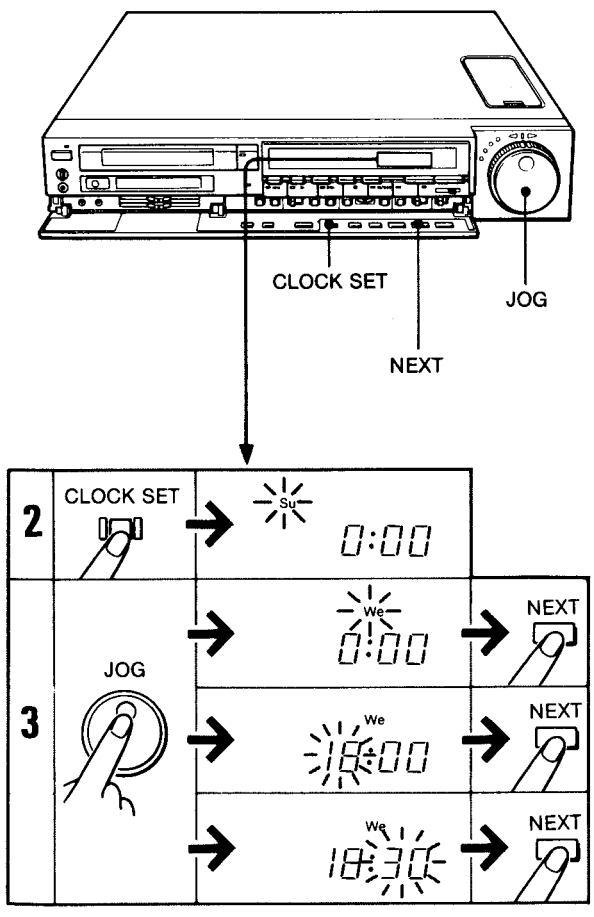
1 Select the programme to be cancelled with + or – PROGRAM/TRACK/INDEX.
2 Press RESET.

The cancelled programme will be skipped when + or – PROGRAM/TRACK/INDEX is pressed.
When the corresponding programme number button on the Commander is pressed, the sound of the cancelled programme will be cut out and no picture will be displayed.

To fine tune a station

If the picture of a particular station is not acceptable, set AFT in the upper compartment to OFF and keep + or – FINE pressed until the picture becomes clear. To view this particular station, set AFT to OFF.

B-3



SETTING THE CLOCK B-3

1 When you connect the unit to a mains outlet, the clock shows "Su 0:00".
2 Press CLOCK SET.
This turns the unit on.
3 Set day, hour and minute in sequence.
First adjust the blinking item by turning the JOG dial, and then press NEXT.
(ex. To set for Wednesday evening at 6:30)
For accurate setting, after adjusting the minute digit, press NEXT at the same time as an announced time signal.
The clock will now start and the dots of the colon will alternately blink every 30 seconds.
4 Press ON/STANDBY to turn off the unit.

JOG dial

Turn clockwise to advance the digits, and anticlockwise to reverse them.

To readjust the previously set item during clock setting

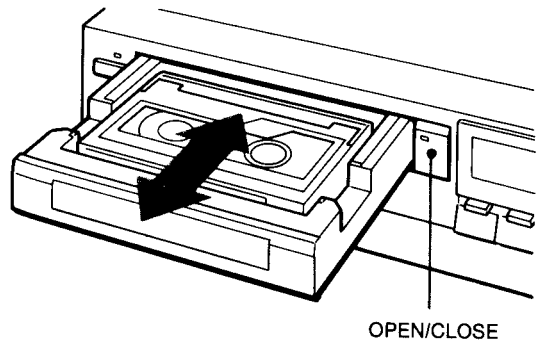
Press CLOCK SET again for a few seconds. Press NEXT until the item to be changed blinks and reset it. Then, terminate the setting by pressing NEXT enough times until the dots of the colon blinks.

If a power interruption occurs,

"Su 0:00" will lights up in the window.

1-4. ABOUT CASSETTES

C-1



INSERTION C-1

1 Press OPEN/CLOSE to open the cassette holder.
Power will be supplied automatically with this step.
2 Place the cassette with the window side up.
3 Press OPEN/CLOSE to close the cassette holder.

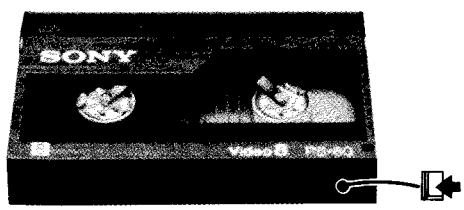
EJECTION

1 Press OPEN/CLOSE.
2 Remove the cassette and press OPEN/CLOSE.

Notes

- Always insert a cassette in the correct direction.
- The lamp inside the holder blinks while the tape is being loaded.
  Wait until the blinking stops before proceeding.
- The cassette holder can be closed by pressing itself manually.
  Never press it forcibly or the cassete may be ejected.
- Once the cassette is placed, you can close the holder by pressing ▶, ◀◀, ▶▶ or ● (REC).

C-2



TO PREVENT ACCIDENTAL ERASURE C-2

When a new recording is made on a previously recorded cassette, the previous recording will be automatically erased. To protect a recording, slide the tab out to cover the opening.
When the tab is out, a recording cannot be made. To re-record on a cassette, slide the tab in.

RECORDING TIME, PLAYBACK TIME

The LP mode is twice as long as the SP mode. For better picture and sound, recording in the SP mode is recommended.
During playback, the mode in which the tape was recorded is selected automatically.

Cassette used	SP mode	LP mode
P5–30	30 min.	1 hr.
P5–60	60 min.	2 hr.
P5–90	90 min.	3 hr.

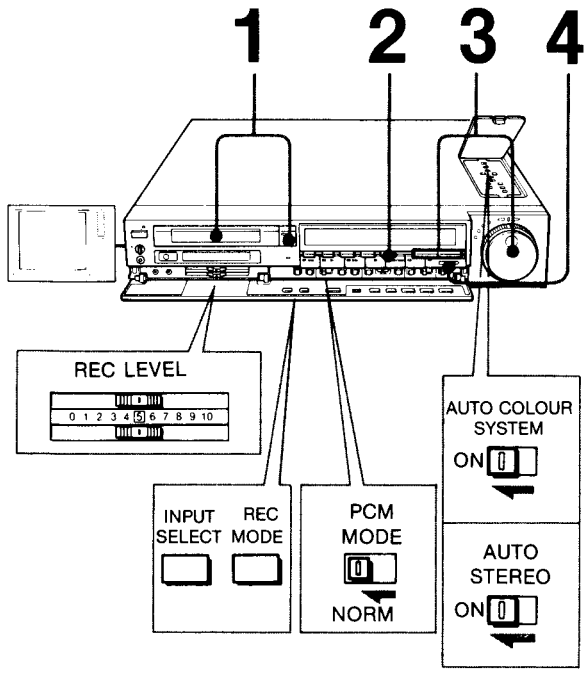
Note

Never insert anything in the small holes on the rear of the cassette.

1-5. TV PROGRAMME RECORDING

Make sure that you have finished all the connections and adjustments on pages 15 through 17.

D-1



OPERATION D-1

Before recording

- Turn on the TV and select the channel for the recorder or select the input for the recorder.*
- Check the position of the selectors:

Press	to display
INPUT SELECT	TUNER
REC MODE	SP or LP

Set	to
PCM MODE	NORM
AUTO STEREO	ON
AUTO COLOUR SYSTEM (EV-S850PS only)	ON

- Set REC LEVEL to "5".

1 Insert a cassette.
2 Press ANT TV/VTR so that the "VTR" indicator is displayed.
3 Select the programme to be recorded with JOG or +/– PROGRAM/TRACK/INDEX.
4 Slide ● REC to the right.

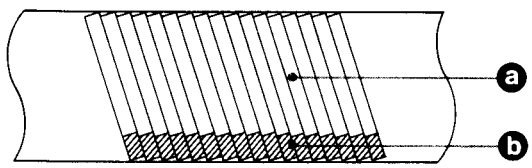
To stop recording
Press ■ STOP.

To stop recording for a moment
Press ❚❚/▶◀ PAUSE/STILL. The TV programme can still be seen on the TV, but the picture is not recorded.
To resume recording, press ❚❚/▶◀ PAUSE/STILL again.
To protect the video heads and the tape, the pause mode will be automatically released after about 7 minutes and recording will stop. Smooth recordings can be made by using ❚❚/▶◀ PAUSE/STILL. See page 19.

When the recording is made to the end of the tape,
the tape will be automatically rewound to the beginning and the unit will enter the stop mode. The power remains on.

* • **If your TV/monitor is equipped with audio/video inputs or a multiconnector,** select the correct input on your TV/monitor.
  • **If your TV/monitor is equipped with SCART (CENELEC) or PERI-TV connector,** the input signal is selected automatically when you display "VTR" with the recorder.

D-2



During recording...

If stereo programmes are received,
"STEREO" indicator will be displayed in the window.

If bilingual programmes are received,
select the sound to be monitored with AUDIO MONITOR MAIN/SUB/MAIN. SUB.

Recording is made as follows: D-2

ⓐ **Standard track**
Video/audio signals of the TV programme and the main sound of a bilingual programme are recorded here.
Recorded sounds are monaural.

ⓑ **PCM track**
Audio signals from the connected equipment or from TV are recorded in digital PCM sound. Sound can either be in monaural (when sounds for left and right channel are the same) or in stereo (each sound for left and right channels).

FOR SMOOTH RECORDING

Recording should always be started from the recording pause mode for smooth transitions between scenes. Proceed as follows if the recording was stopped or if you want to record on a pre-recorded tape from a desired point.

To start recording from a particular point
You can decide the starting point for recording while watching the picture.

1 Play back the tape and locate the point for recording while watching the picture.
2 Press ❚❚/▶|◀ PAUSE/STILL to stop the tape where you wish to start recording.
3 Slide ● REC to the right. The recorder will enter the recording pause mode.
4 Press ❚❚/▶|◀ PAUSE/STILL at the desired point to release the pause mode.
Recording starts.

Note

Be sure not to change the position of REC MODE (SP/LP) between different scenes. Particularly, if you change the switch from LP to SP, a short blank will be recorded.

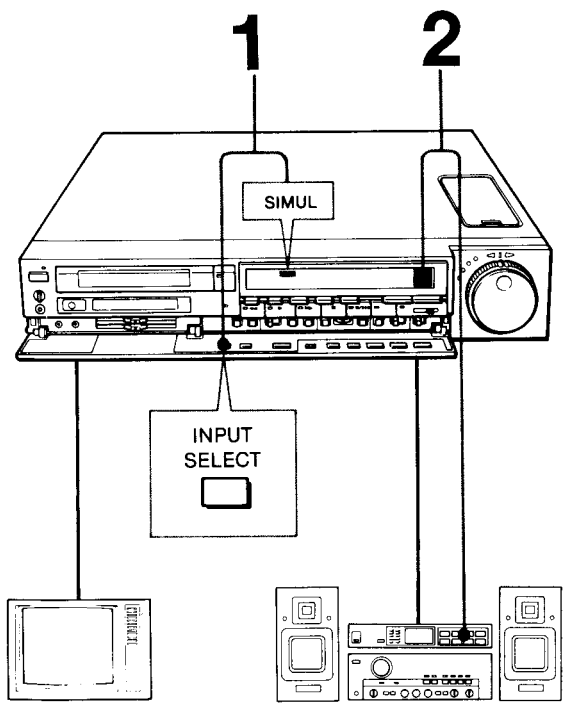
Frame-by-frame recording
If ● REC is slid to the right while the unit is in the recording pause mode, a short recording of approx. 7 seconds will be made, and then the unit enters the recording pause mode again.
Repeat this operation as many times as you like.

TO VIEW ONE TV PROGRMME WHILE RECORDING ANOTHER

1 Press TV/VTR so that the "VTR" indicator disappers from the window.
2 Select the programme you want to view on the TV.

If your TV is equipped with a TV/VTR input selector, simply set the selector to "TV" and select the programme on the TV.

D-3



TO RECORD A TV PROGRAMME WHILE RECORDING AN FM BROADCAST AT THE SAME TIME — FM simulcast recording D-3

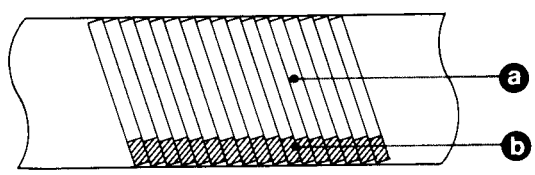
Sometimes a TV station and an FM radio station will broadcast a programme simultaneously so that you can record a TV programme in high-fidelity stereo. The TV programme (video and monaural audio) is recorded normally on the standard track and the stereo audio portion is recorded on the PCM track from your FM tuner.

For details on connection.

Operation
Operate as described in "TV programme recording" on page 18 except the following points:
1 Press INPUT SELECT so that the "SIMUL" indication appears in the window.
2 Select the programme both on the VTR and the FM tuner.

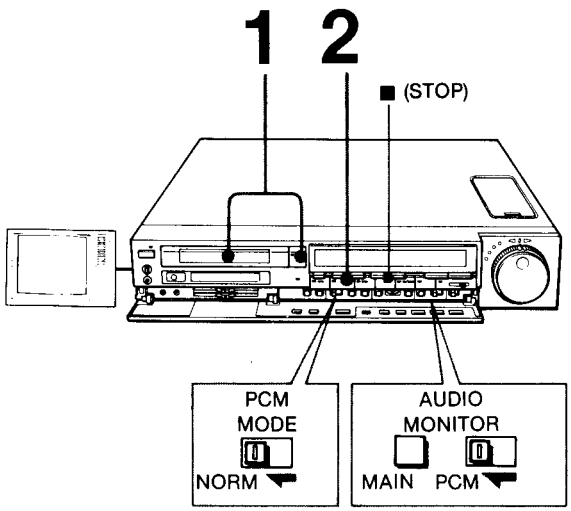
Recording will be made as follows: D-4
ⓐ **Standard track**
Video and audio signals of the TV programme will be recorded here.
ⓑ **PCM track**
FM broadcast programme from the FM tuner will be recorded in stereo.

D-4



1-6. PLAYBACK

E-1



E-1

Before playing back

- Turn on the TV and select the channel for the recorder or select the input for the recorder.*
- Check the position of the selectors:

Set	to
PCM MODE	NORM
AUDIO MONITOR	
Press MAIN/SUB/M.S.	to display MAIN
Set PCM/MIX/STD	to PCM

— Set as above, you can listen to the MAIN language of the bilingual programme and the stereo sound recorded on the PCM track of the tape.
— When nothing is recoded on the PCM track, you will automatically hear the sound recorded on the STD track.

To monitor other kinds of sound, change these settings. See "To select the monitor sound" below.

Note

If the picture is not displayed and/or the sound is not heard or heard only intermittently when a tape which has been recorded on a video camera recorder or a video cassette recorder without the PCM function is played back on this unit, set AUDIO MONITOR on this unit to STD. (Although AUDIO MONITOR is set to STD, the "PCM" indicator may occasionally light up.)

OPERATION

1 Insert a cassette.
2 Press ▶ PLAY.

To stop playing back

Press ■ STOP.

To select the monitor sound

Kind of the tape (conditions of recorded signals)	**Track to be played back**	**Position of the selector**	
		MAIN/ SUB/M.S.	**PCM/MIX/ STD**
Stereo	PCM	—	PCM
FM simulcast (Page 20)	PCM	—	PCM
Bilingual	PCM	MAIN, SUB or M.S	PCM
Audio dubbed (Page 44)	PCM and STD	—	MIX

"—" means that the selector can be set to any of its position.

* • **If your TV/monitor is equipped audio/video inputs or a multi-connector,** select the correct input on your TV/monitor.
  • **If your TV/monitor is equipped with SCART (CENELEC) or PERI-TV connector,** the input signal is selected automatically when you display "VTR" with the recorder.

To advance or rewind the tape rapidly
Press ▶▶ FF or ◀◀ REW respectively in the stop mode.
To stop the tape, press ■ STOP.

Auto play — To play back a tape from the beginning of the tape after rewinding
Press ▶ PLAY keeping ◀◀ REW depressed, or press AUTO PB on the Remote Commander.
After the tape is completely rewound, it will automatically be played back.

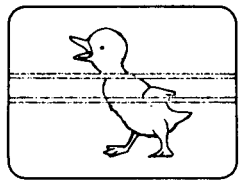
VARIOUS PLAYBACK MODES

Use the buttons on the recorder or on the Remote Commander.

Picture search — viewing the picture at a fast speed to find a particular scene
Keep pressing ▶▶ FF or ◀◀ REW during playback.
When you release the button, the normal playback will be resumed.

E-2

Streaks appear and the sound is muted during "Picture search" and "Still picture". E-2

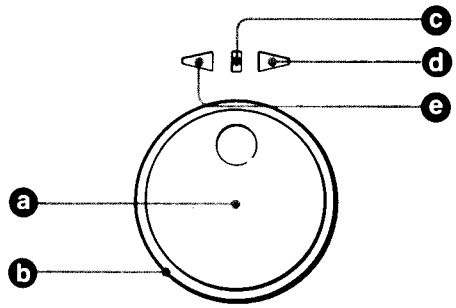


Still picture (playback pause)
Press ❚❚/▶|◀ PAUSE/STILL during playback. The sound is muted.
To resume normal playback, press ❚❚/▶|◀ PAUSE/STILL again or press ▶ PLAY.

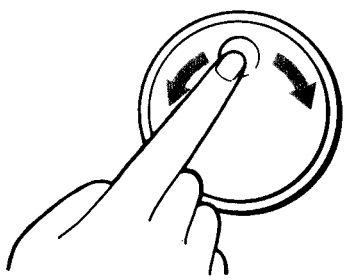
To protect the video heads and the tape, the pause mode will be automatically released after about 7 minutes and playback will be resumed.

To obtain better playback picture in variable playback modes
- **If the still picture seems to shake,**
  press + or − SLOW/STILL ADJ in the upper compartment until the picture stabilizes.
- **If streaks or noise bands appear in still, frame-by-frame, normal** (x1), **double** (x2), **1/10 or 1/5 speed picture,**
  set to 1/10 or 1/5 speed picture mode and press + or − SLOW/STILL ADJ.

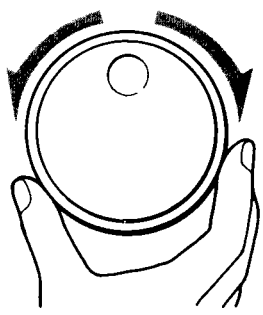
E-3



E-4



E-5



VARIOUS SPEED PLAYBACK USING THE JOG DIAL AND SHUTTLE RING

E-3

ⓐ JOG dial
ⓑ SHUTTLE ring
ⓒ Lights when JOG and SHUTTLE are operable or in use.
ⓓ Indicates the forward playback.
ⓔ Indicates the reverse playback.

Using the JOG dial E-4

1 Play back a tape and stop the playback by pressing ❚❚/▶◀ PAUSE/STILL.
2 Turn the JOG dial.
The tape will be played back at the speed at which you are turning the dial (1/10, 1/5 or normal speed). Turn it clockwise for forward playback, or anticlockwise for reverse playback.
3 When you stop turning the JOG dial, the still picture will be displayed.

Using the SHUTTLE ring E-5

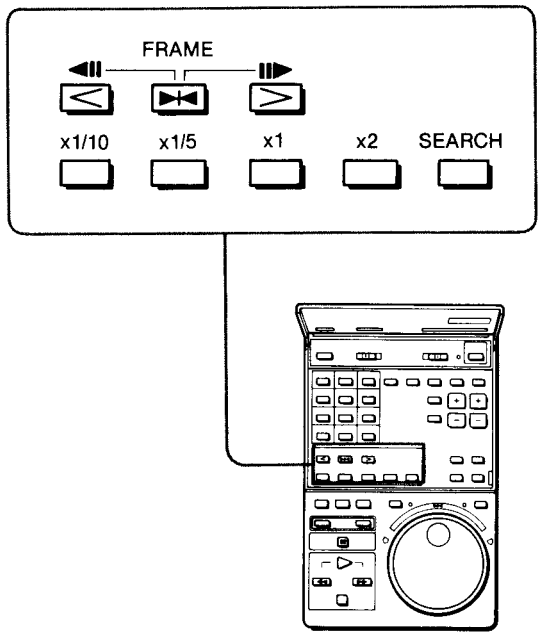
1 Play back a tape and stop the playback by pressing ❚❚/▶◀ PAUSE/STILL.
2 Turn the SHUTTLE ring and hold it at the position where the desired playback speed is obtained.
You can select 1/5, normal, double or continuous picture search speed.
Turn it clockwise for forward playback, or anticlockwise for reverse playback.
3 When the SHUTTLE ring is released, the still picture will be displayed.

To use the JOG dial and SHUTTLE ring on the Remote Commander

Before operating JOG or SHUTTLE, press the JOG SHUTTLE function button on the Commander so that the associated indicator lights. The VTR will enter playback pause mode.
If JOG and SHUTTLE on the Commander are not used for more than one minute, their function will be released automatically in order to prevent undue battery wear. To use JOG and SHUTTLE again, press the JOG SHUTTLE function button once more.

- JOG and SHUTTLE on the Commander will function in still picture and various speed playback modes.
- Once you have used JOG and SHUTTLE on the Commander for various speed playback, then, JOG and SHUTTLE on the unit will not function.

E-6



VARIOUS PLAYBACK MODES USING THE REMOTE COMMANDER E-6

Frame-by-frame picture
Press FRAME ▮▮► (forward) or ◄▮▮ (reverse) in still picture mode.
Press ► PLAY to resume normal playback.

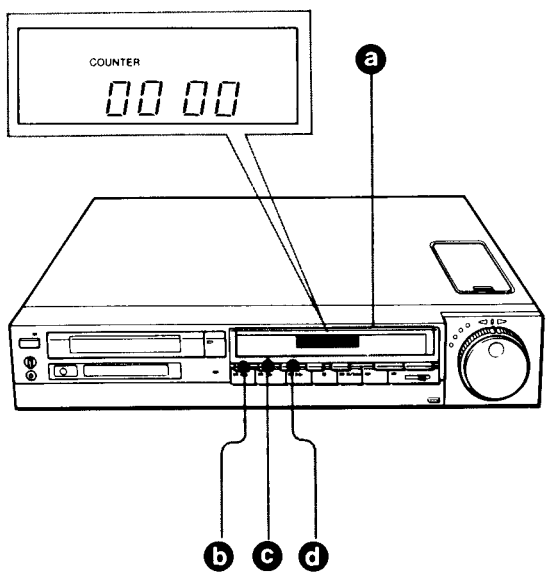
Variable speed playback
Press the desired speed button during playback or in still picture mode. The sound is muted (except in x1 and x2 forward picture).
►◄: still picture
x1/10: slow motion picture at 1/10 normal speed
x1/5: slow motion picture at 1/5 normal speed
x1: normal speed picture
x2: double speed picture
SEARCH: continuous picture search

To reverse the direction of the variable speed playback, press ◄▮▮. To resume forward playback, press ▮▮►.

To change the playback speed, simply press the desired speed button.

To resume normal playback, press ► PLAY.

F-1



USE OF THE TAPE COUNTER

The tape counter indicates the relative position of programmes on the tape.

F-1

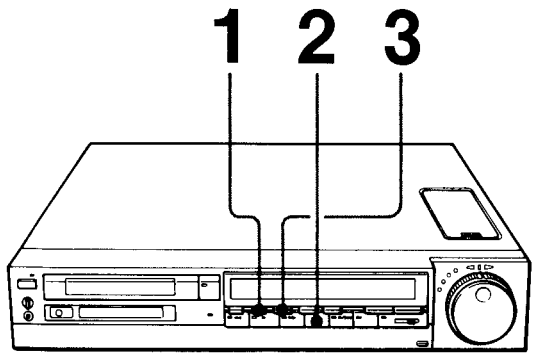
ⓐ Display window
ⓑ COUNTER/REMAIN
ⓒ COUNTER RESET
ⓓ GO TO ZERO

To index the tape contents
Before starting recording or playback, press COUNTER RESET to set the counter to 0000. By noting the counter reading at the desired point, you can easily find that point later by referring to the counter.
Note to list the programmes and their counter readings.

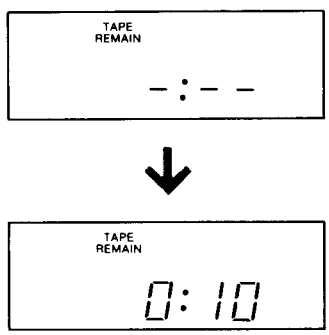
Notes

- The counter reading is automatically reset to zero when a cassette is newly inserted.
- The counter reading will be retained in the memory even after the power is turned off, as long as the cassette is kept inserted in the cassette holder.
- The counter reading will not exactly correspond to the position of the tape after the tape has been stopped or run repeatedly in fast-forward or rewind mode.

F-2



F-3



GO TO ZERO — To stop the tape at a particular point F-2

1 During recording or playback, press COUNTER RESET at the point you want to locate later.
2 When recording or playback is finished, stop the tape.
3 Press GO TO ZERO.
The tape will be rewound or advanced close to the counter 0000 point.

GO TO ZERO play — To start playback automatically from the counter zero point

Press ▶ PLAY after pressing GO TO ZERO.
The indicator on ▶ PLAY will blink.

To check the remaining recording or playback time F-3

During recording or playback, press COUNTER/REMAIN.

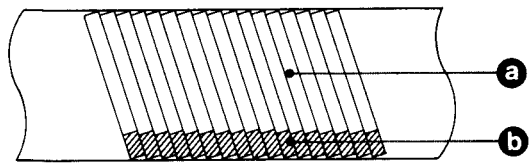
The displayed remaining time will decrease as the recording or playback goes on.
To display the tape counter, press COUNTER/REMAIN again.

Notes

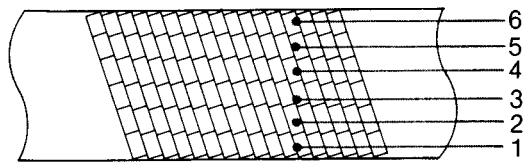
- The remaining time appears only after the "-:--" indication has been displayed for several seconds.
- If you want to display the remaining time during x2 (in the right direction) and x1, x2 (in the reverse direction), first display the remaining time in the normal playback mode. Then, set in the above speed and press COUNTER/REMAIN.
- During the frame-by-frame or the slow-speed playback, the display indicates the remaining time when the playback started.
- On the accuracy of the remaining time counter:
  —For commercially available recorded tapes, the counter will not indicate the exactly same time as the recorded time labeled on the tape.
  —For damaged tapes and nonstandard tapes, the accuracy will be degraded.
  —At the beginning of a tape, especially when the tape has just been rewound, the remaining time will be calculated greater than the actual time (by several minutes max.).

1-7. DIGITAL MULTI AUDIO RECORDING AND PLAYBACK

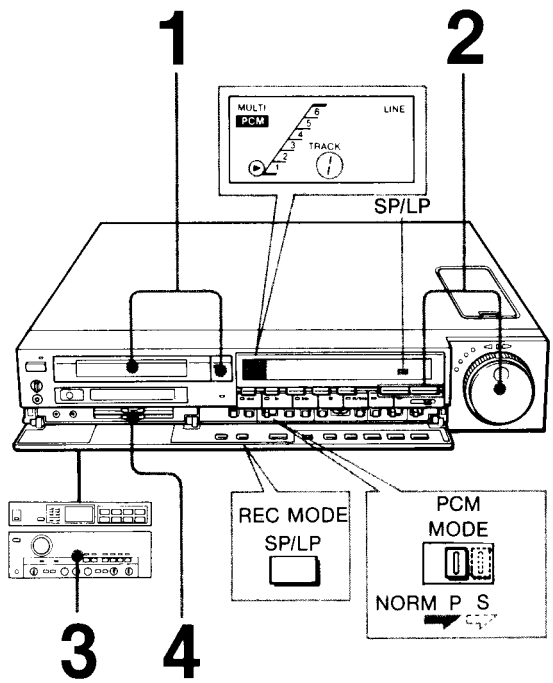
G-1



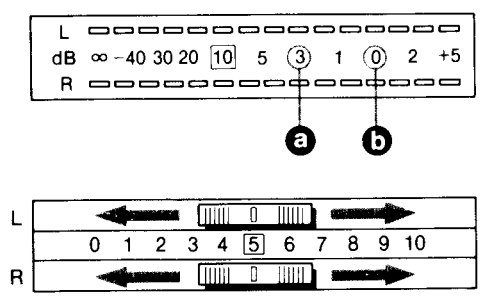
G-2



G-3



G-4



Normally, both the video and audio signals can be recorded on your video tape.

G-1

ⓐ Video + audio
ⓑ Audio

However, you can record up to 6 tracks of only the audio signals in the digital mode, using the full width of the tape. This is called digital multi audio recording, providing a high-fidelity stereo sound. G-2

To connect the VTR to your audio system.

RECORDING G-3

Before recording
Check the position of the selectors:

Set	to
REC MODE	SP or LP
PCM MODE	P or S*

* Set to either of two positions. They activate in the same way.

Operation
1 Insert a cassette.
2 Turn JOG or press +/– PROGRAM/TRACK/INDEX to select the digital multi audio track on which recording should be made.
—Adjust "▶" (red indication) to the desired track.
3 Turn on the power on the audio equipment and set to the playback mode.
4 Adjust REC LEVEL.
Verify the adjustment with the peak level meter of the recorder.

Recording level adjustment G-4
Referring the peak level meter, manually adjust the recording level with REC LEVEL.

Select the best recording level for each source as follows:
When recording sources with many high frequency signals (ex: trampets etc) set so that the peak programme meters deflect –3 dBs. ⓐ
When recording sources with midium or lower frequency signals (ex: vocals) set so that the peak programme meters deflect 0 dB. ⓑ

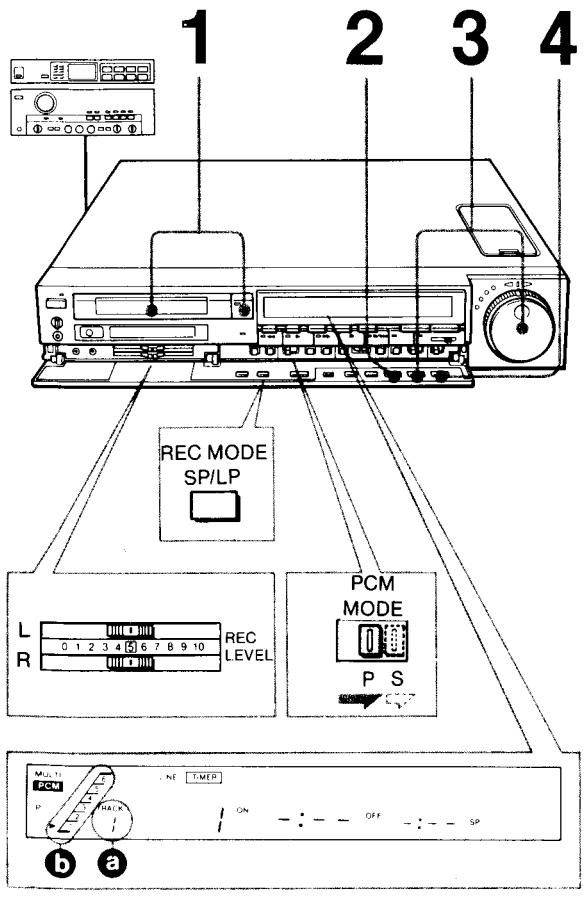
During playback, you can read the recorded level on the peak level meter.

TIMER RECORDING

If you connect any audio tuner with timer presetting functions, you can record up to 6 radio programmes in the digital PCM sound.

6 programmes can be recorded either on 6 separate audio tracks (for parallel recording) or they can be recorded successively on one track (for series recording).

G-5



Before presetting G-5

- Turn on the audio tuner.
- Check if the clock is set correctly. (Page 16.)
- Check the position of selectors:

Press	to display
REC MODE	SP or LP

Set	to
PCM MODE	P (parallel) or S (series)
REC LEVEL	"5"

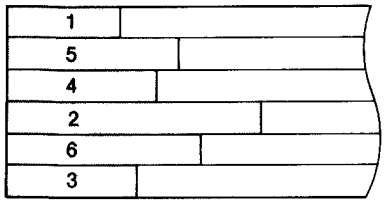
Presetting

1 Insert a cassette.
2 Press TIMER SET.
3 Set the following items by turning JOG and pressing NEXT.
   — audio track (Set the track number displayed in numeral.) ⓐ
   — day of the week
   — recording starting time
   — ending time
   (Refer to "Timer-activated recording" on page 33.)
4 Press TIMER REC.

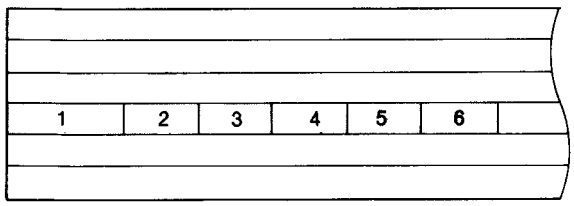
Notes

- After having set the timer, do not change the position of PCM MODE because the timer recording will not be made correctly.
- Timer presettings of TV programme recordings and digital multi audio recordings can be made on one tape. However, such presettings are not recommended because you must verify the position of the PCM MODE switch before each timer recordings.
- **To preset or check the digital multi audio track while you are using this unit**
  1) When the unit is in digital multi audio playback/recording
     ⓐ The track for presetting. Set with JOG.
     ⓑ The track on which playback or recording is being made. Select with PROGRAM/TRACK/INDEX.
  2) When the unit is in normal playback/recording
     ⓐ+ⓑ The track for presetting. Set with JOG.

G-6



G-7



Parallel and series recordings

Parallel recording — stereo recording of one programme on each track
- After a programme is recorded on one track, then, another recording will begin on another track from the beginning of the tape.
- You can select the track in any order for any programme. G-6

Series recording — Stereo recording in series on only a single track
- After one programme is recorded, another one is recorded successively on the same track. G-7

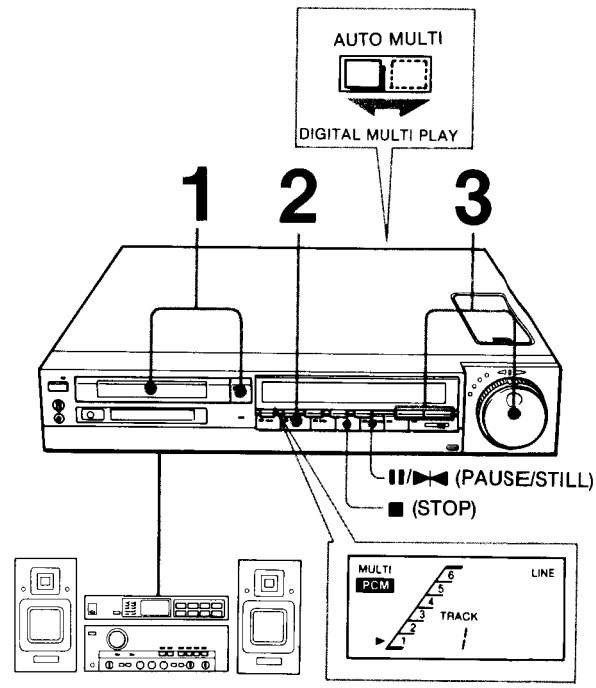
Notes

On parallel recording
- If a programme is already preset on a track, you cannot preset another programme on the same track.
- For the first timer-recording programme, the tape will not be rewound automatically to the beginning. The recording will start from the current position of the tape.
- If the next programme starts before the tape has been rewound completely, the beginning of the programme will not be recorded.

On series recording
- The track on which timer recordings are made, is the track that is selected in the last timer programme setting.
- After all the preset programmes are preset, the tape will not be rewound to the beginning.

PLAYBACK G-8

G-8



Before playback
- Turn on the audio system so that sound is heard from speakers.
- Set DIGITAL MULTI PLAY on the rear to:
  AUTO for playing back tapes recorded by this VTR.
  MULTI for playing back tapes recorded by other VTRs (when their sound cannot be heard with the switch set to AUTO).

Playback
1 Insert a cassette.
2 Press ▶ PLAY.
3 Turn JOG or press +/– PROGRAM/TRACK/INDEX to select the track to be monitored. The red "▶" indicates the selected track.
  Only the track marked with red bar on the right side has certain recorded signals. Recordings are not made on the tracks without this indication.

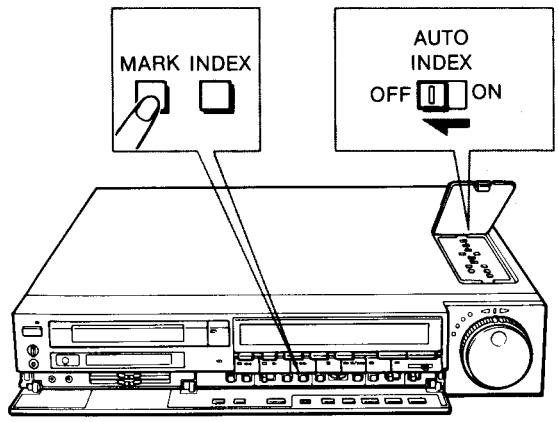
To stop playing back
Press ■ STOP.

To stop the tape for a moment
Press II/▶◀ PAUSE/STILL.

Notes
- When DIGITAL MULTI PLAY is set to MULTI, all bars light up even if nothing has been recorded on the tracks.
- While playback, we recommend that you set REC LEVEL to the "0" position. If not noise which appears when you stop the tape, may damage the speakers.

1-8. INDEX FUNCTION

H-1



The desired programme can be easily located by the index signal marked on the tape.
This function is effective either to normal video-audio recorded tapes and to digital multi audio recorded tapes.

TO MARK INDEX SIGNALS

Index signals can be marked at any desired point on the tape during recording, timer recording or normal playback.

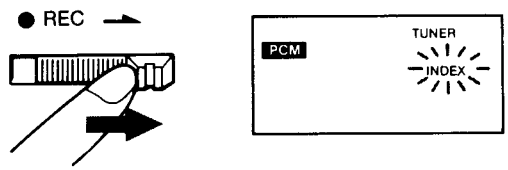
H-1

1 Set AUTO INDEX in the upper compartment to OFF.
2 Press INDEX MARK at the point where an index signal is to be marked.
The "INDEX" indication blinks while the index signal is being marked.

An index signal is automatically marked on the tape when
● REC is slid to the right or when a timer recording starts.
H-2

The "INDEX" indication blinks in the window while the index signal is being marked.

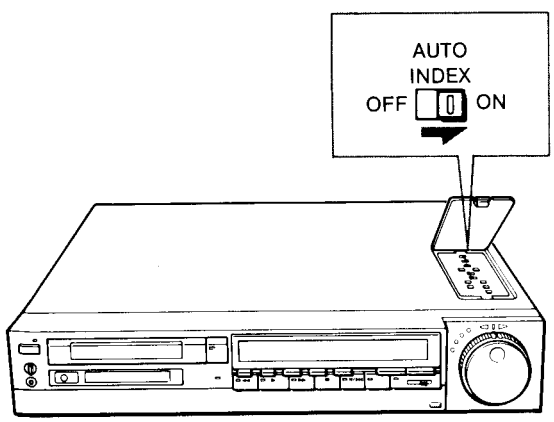
H-2



Notes

- Index signals will not be marked on the tape when the recording is started by releasing the recording pause mode.
- The index function operates also with the index signals marked using the index function (same format) of other recorders.

H-3



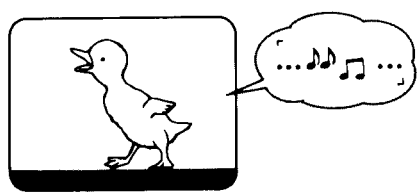
TO MARK INDEX SIGNALS AUTOMATICALLY IN DIGITAL MULTI AUDIO RECORDING H-3

Set AUTO INDEX in the upper compartment to ON.
The VTR searches for the blank spaces (of approx. 3 seconds) between programmes (musics etc.), and marks index signals.
The "INDEX" indication blinks while the index signal is being marked.

Notes

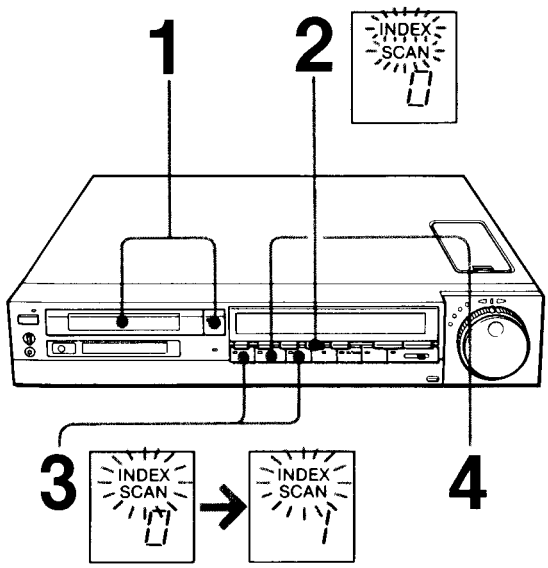
- The sound will decrease and be kept at this volume while the index signal is being marked in the playback mode. In addition, a black bar noise will appear at the bottom of the playback picture during marking H-4 However, the recorded signals are not affected.
- During playback, index signals can be marked on cassette tapes whose safety tab is slid out (including commercially available prerecorded video tapes).
- An index signal may not be registered immediately before a point on the tape where the recording tape speed changes.
- You cannot mark nor erase index signals if no video/audio signals is recorded on the PCM track of the tape.

H-4



- Between each index signal, there must be a minimum space of 2 minutes for LP mode and 1 minute for SP mode.
  If index signals are marked at shorter intervals, index scan or search functions may not be operated correctly.
- For tapes that index signals are marked automatically, index scan or search may not be made correctly because of the quality of the audio source.
  In this case, set AUTO INDEX to OFF and mark index signals manually.
- Index marking and erasing cannot be made during tape editing. (When the EDIT lamp is lit.)

H-5



INDEX SCAN

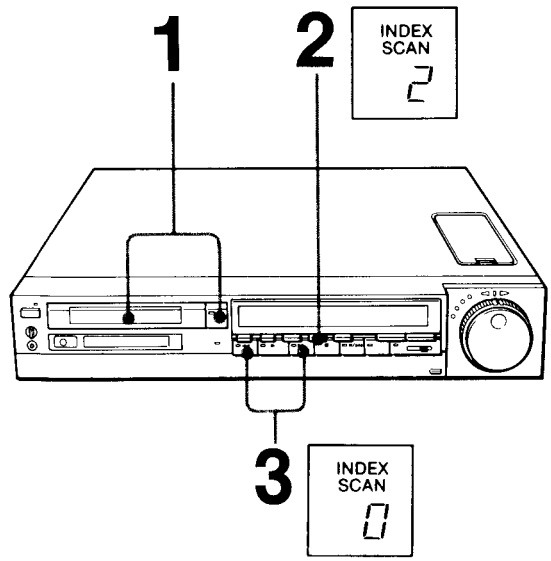
— To play back the beginning of each programme in sequence H-5

Before operating

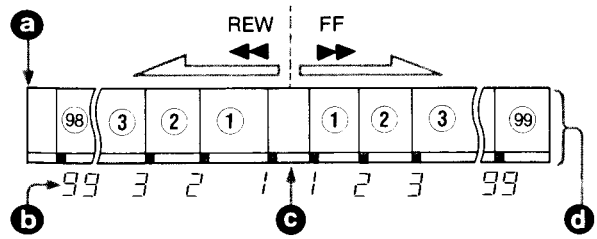
Set PCM MODE to NORM, or P (or S).
If you have set to P (or S), select the digital multi audio track.

1 Insert a cassette that has index signals recorded.
2 Press INDEX once.
  The "INDEX" and "SCAN" indications blink alternately.
3 To scan the previous programmes, press ◀◀ REW.
  To scan the programmes ahead, press ▶▶ FF.
  The tape will be rewound or rapidly advanced to the next index signal marked.
  While scanning, the "INDEX" and "SCAN" indicators blink, simultaneously. The tape will be played back for approximately 10 seconds, and then, rewound or advanced to the next index signal.
  Everytime an index signal is deteced and playback begins, the displayed index number increases.
4 At the desired programme, press ▶ PLAY.
  Normal playback of that programme will begin.

H-6



H-7



INDEX SEARCH H-6

— To locate the desired programme

You can locate the desired programme and play it back automatically by designating the number of its index signal. Up to 99th index signal from the present position on the tape can be located.

Before operating

Set PCM MODE to NORM or P (or S).
If you have set to P (or S), select the digital multi audio track.

1 Insert a cassette that has index signals marked.
2 Press INDEX several times until the index number of the desired programme is displayed.
For instance, to locate the second programme ahead, two index signals should be detected, so press INDEX until "2" is displayed. On the other hand, to locate the second programme behind, three signals, should be detected, so press the button until "3" is displayed.

H-7
- ⓐ Beginning of the programme
- ⓑ Index number
- ⓒ Present position
- ⓓ Video tape (or one of the 6 digital multi audio tracks)

Notes

- To designate higher index number, first press INDEX several times, then continue with +/– PROGRAM/TRACK/INDEX or JOG so that the desired index number display appears.
- If you enter an incorrect index number, press ■ STOP to reset the display.

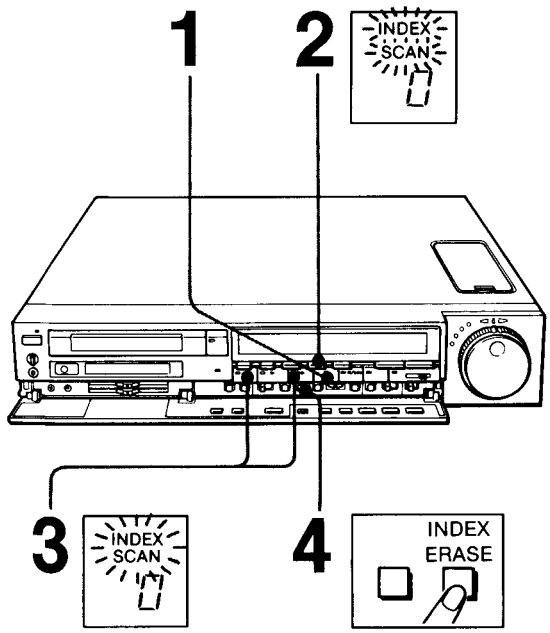
3 To locate a previous programme on the tape, press ◀◀ REW.
To locate a programme ahead, press ▶▶ FF.

The tape will be rewound or rapidly advanced. Every time an index signal is detected, the displayed number will decrease. When the number reaches 0, playback of your desired programme will begin.

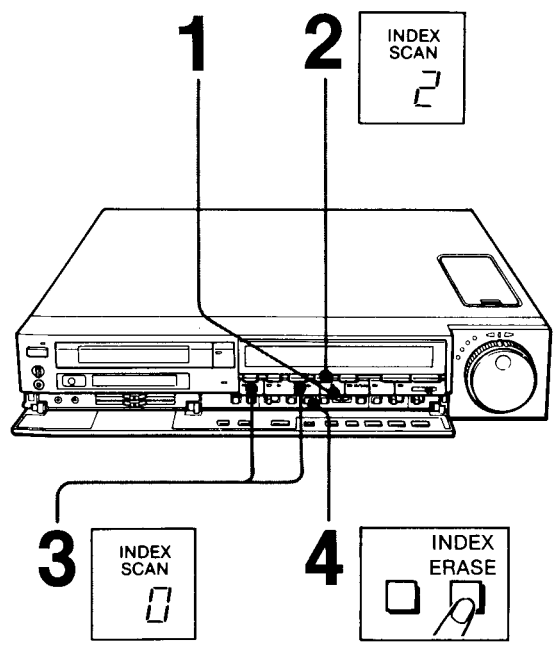
Notes

- If, on a tape, there are portions on which index signals are marked on the first PCM audio track in the digital multi audio mode, and portions on which index signals are marked in the normal mode, the index scan and search in the normal mode cannot be made correctly.
- For index scan or search in digital multi audio mode, set AUDIO MONITOR to PCM or MIX.
- Index scan and search can be activated during playback mode. (In the mode which was being selected when the playback started.)
- While the index signals are being scanned or located, nothing is displayed on the monitor and sound is cut off.
- If the tape is rewound to the beginning during index scan or index search, playback will begin automatically.
- If the tape reaches the end during index scan or index search, the tape will not be rewound automatically.

H-8



H-9



When the desired programme cannot be played back with the index function, check the following:

- The nearest index signal may not have been counted.
  If the point where you pressed ◀◀ REW or ▶▶ FF is fairly close within 2 minutes of the normal tape-run to the nearest index signal, that signal will not be counted.
- Is there a space of more than 2 minutes between two index signals?
  If there is more than one index signal marked within an interval of 2 minutes of the normal tape-run, the mechanism may not function properly.

TO ERASE INDEX SIGNALS H-8

Before operating
Set PCM MODE to NORM or P (or S).
If you have set to P (or S), select the digital multi audio track.

Erasing while index scanning — To erase the index signals in sequence

1 Stop the tape with ■ STOP.
2 Press INDEX once.
3 Press ◀◀ REW or ▶▶ FF.
  The tape will be rewound or rapidly advanced to the next index signal and playback will begin.
4 Within approx. 10 seconds, while the tape is being played back, press INDEX ERASE.
  The "INDEX" indication blinks and the "SCAN" indication lights steadily while the index signal's erasure.

After the erasure, index scan will resume. At each index signal located, press INDEX ERASE.
To stop index scanning, press ■ STOP.

Notes

- Press INDEX ERASE more than 2 seconds after the playback starts.
- The index signals recorded immediately after an unrecorded portion on a tape, or on a portion where the recording tape speed has been changed or two recordings have been made continuously will not be erased.
  During index erasing, a black bar noise will appear at the bottom of the playback picture.

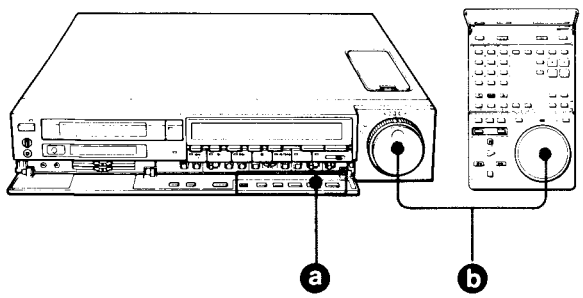
Erasing while index searching — To erase a particular index signal H-9

1 Stop the tape with ■ STOP.
2 Press INDEX button several times until the number of the index signal to be erased is displyed.
3 Press ◀◀ REW or ▶▶ FF.
4 Within approx. 10 seconds, while the tape is being played back, press INDEX ERASE.
  The "INDEX" indication blinks while the index signal is being erased.

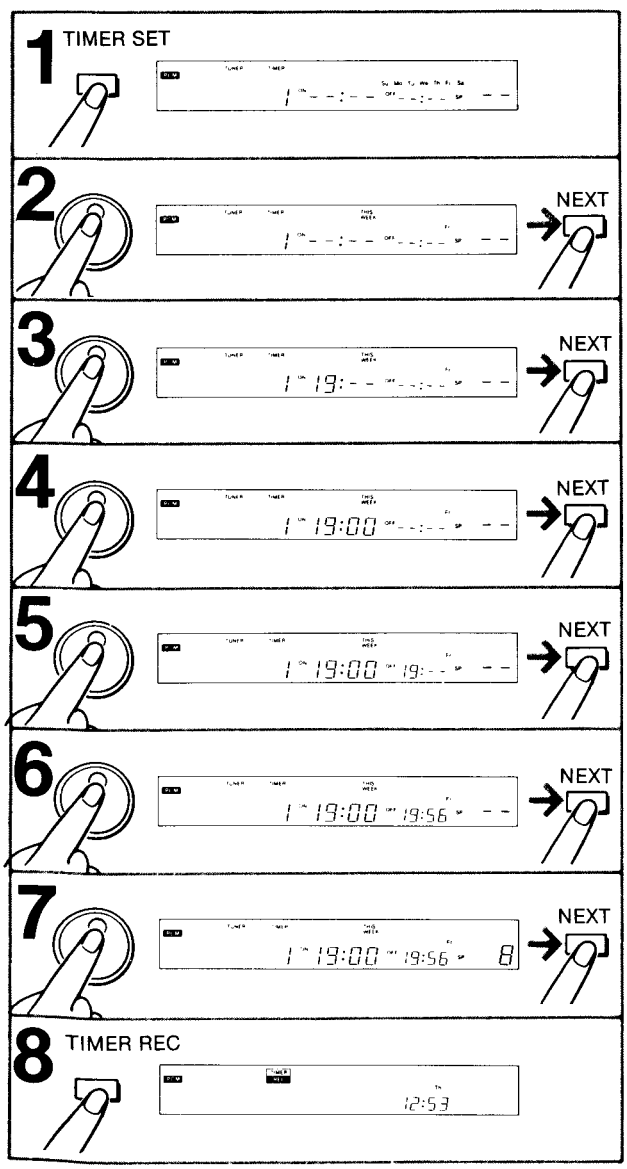
After the erasure, the unit returns to the normal playback.

1-9. TIMER-ACTIVATED RECORDING

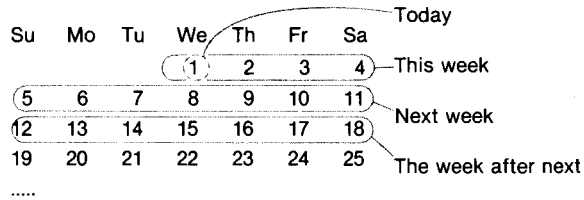
I-1



I-2



Six recordings can be preset to be made between today and Saturday of the week after next.



Before setting the timer

- The clock must be set correctly.
  For the setting, see page 16.
- Make sure the cassette tape is long enough to record all the programmes.
- Be sure the safety tab of the cassette has not been slid out.
- Set the selectors as in "Before recording" on page 18.

I-1

Buttons for timer setting

You can use the buttons and JOG dial on the recorder.

a NEXT button
Every time you press the NEXT button, the item to be set will blink.

b JOG dial
To set the week and day, the turn-on and turn-off times and the channel, turn clockwise to advance and anticlockwise to reverse.

Operation I-2

Suppose you want to make a recording of channel 8 from 7:00 PM to 7:56 PM Friday.

1 Press TIMER SET.
2 Set the week and day with JOG.
  Then, press NEXT.
3 Set the turn-on hour with JOG.
  Press NEXT.
4 Set the minute with JOG.
  Press NEXT.
5 Set the turn-off hour with JOG.
  Press NEXT.
6 Set the minute with JOG.
  Press NEXT.
7 Set the TV programme number to be recorded with JOG.
  Press NEXT.
  To preset other programmes, repeat steps 1 to 7.
8 Press TIMER REC.

The power will be turned off and the recorder will enter the standby mode. (The current time is displayed.)

Recording will start at the preset time and will automatically stop when the recording is completed.
The memory of the timer programme will be erased if it is for only one day and the timer programme numbers will advance one by one.

Notes

- Once the TIMER REC indicator has been displayed, only the functions of CHECK and TIMER REC can be activated. For the usual manual operations, press TIMER REC again so that the indicator goes off, and then, turn on the power.
- Timer recordings of the signals from the AUDIO IN jacks, in the digital multi audio mode can also be made. See page 27.

If you select an incorrect digit for the turn-on/off time setting, press CLEAR. The programme which is currently being set will be cancelled but the other programmes previously set will remain.

To set the week and day
The week and day indications change in the direction of the arrow, starting from today, when you turn JOG clockwise; and in the reverse direction when you turn JOG anticlockwise.

The day(s) you want the recording(s) made	Display
At the same time every day	→ Su Mo Tu We Th Fr Sa
Only one day	THIS WEEK We (Today) → Th →···→ Sa NEXT WEEK → Su →···→ Sa WEEK AFTER NEXT → Su →···→ Sa
At the same time on the same day every week	EVERY WEEK → Su →···→ Fr → Sa
At the same time every day from Monday to Friday	→ Mo Tu We Th Fr
At the same time every day from Monday to Saturday	→ Mo Tu We Th Fr Sa

BEFORE THE TIMER-ACTIVATED RECORDING STARTS

To check the timer settings
Press CHECK.
Every time you press CHECK, each programme will be displayed in the window.

To change the settings
1 Press TIMER REC. The TIMER REC indicator goes off.
2 Press CHECK to select the programme to be changed.
3 Press TIMER SET.
4 Press NEXT until the item to be changed blinks.
5 Change the setting with JOG.
6 Press NEXT so that the tape counter and the current time appear in the window.
7 Press TIMER REC again to reactivate the timer.

To erase the memory of a particular programme
1 Press TIMER REC. The TIMER REC indicator goes off.
2 Press CHECK to select the programme to be erased.
3 Press CLEAR. The memory of the programme will be eliminated.
4 If other programmes have been preset for recording, press TIMER REC again to reactivate the timer.

DURING RECORDING

To stop the timer recording
Press TIMER REC. The recording will stop and the power will be turned off.

When the tape ends during timer recording
The tape stops but the tape will not be rewound.

The ■ STOP and ❚❚/▶◀ PAUSE/STILL buttons do not function during a timer recording.

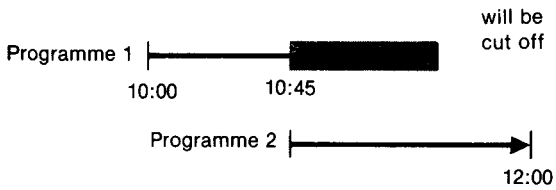
NOTES ON TIMER-ACTIVATED RECORDINGS

Troubles when TIMER REC is pressed

The cassette will be ejected automatically →
- The cassette inserted has the safety tab slid out.
- No cassette is inserted.
- The tape is at its end

The "TIMER-REC" indicator disappears →
- The turn-on time has been set before the current time.

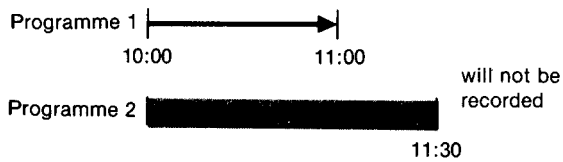
I-3



When the presettings of your timer-activated recordings overlap I-3
The recording of programme 2 will begin before the programme 1 is finished.
In the illust.: (The coloured portion will not be recorded.)

If the turn-on time of two programmes are the same I-4
The recording of the programme having the lower programme number will be made. The memory of the programme having the higher number will be cleared.
In the illust.: (The coloured portion will not be recorded.)

I-4



If the turn-on time of one programme is the same as the turn-off time of another programme
When a timer recording starts, the unit is set to recording pause mode 6 seconds before the preset turn-on time. The pause mode is released exactly at the preset turn-on time and recording starts approximately 1 second later. Therefore, the end of the first programme will not be recorded for 6 seconds. Both recordings, however, will not be made smoothly.

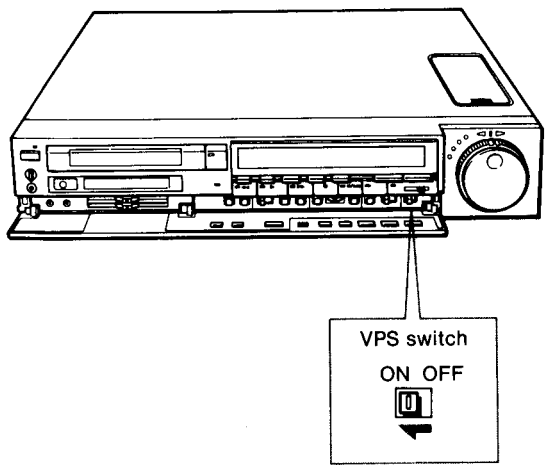
If a power interruption occurs before a timer recording
The clock will stop and "Su 0:00" will light up. This means that the memory of the timer programmes has been completely erased. Reset the clock and timer programmes.

A short power interruption of less than approximately 20 seconds will not affect the memory. The clock will show the correct time and the timer programmes will be performed.

If the power was interrupted during a timer recording
Recording will stop and the power will be turned off. If the interruption was less than approximately 20 seconds, the recording will resume.

1-10. ABOUT THE VPS SWITCH

I-5



— EV-S850PS only I-5

To avoid missing a timer-activated recording because of a delay in the transmission sequence or a change in the programme schedule, the West German broadcasting stations have agreed to transmit a special code, called the VPS (Video Program System) code, together with the TV programme. The EV-S850PS is equipped with a VPS switch which allows you to preset recording times and insures that your programmes will be recorded regardless of delays.

1 **Set the VPS switch to ON.**
The VPS indication appears in the display window.
2 **Set the timer to the time listed in the VPS programme guide which corresponds to the programme you want to record.**

The unit will be turned on 10 minutes before the preset time, but recording will start when the preset programme begins.

Notes

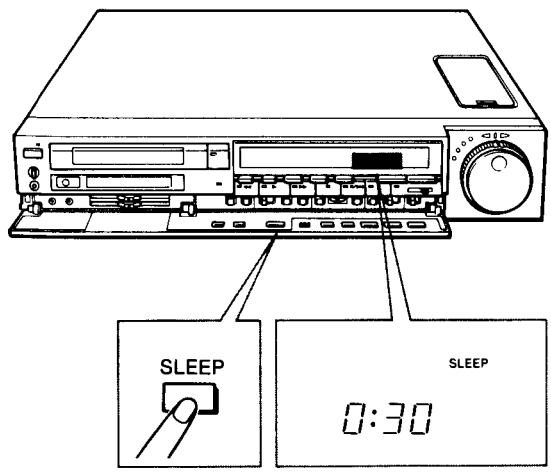
- If the station you want to record fails to transmit the VPS code signal with the programme, or the VPS code cannot be detected for some reason, recording will begin at the time you preset.
- Be sure to set the timer according to the VPS programme guide, otherwise programme will not be recorded.
- Even if the preset programme does not begin, the unit will remain prepared for recording until 4:00 AM of next day. Or the unit will be prepared to record for 23 hours 50 minutes when the preset time is between 0:00 AM to 4:00 AM.
- When the unit receives a VPS programme interruption code during recording (for example, when urgent news is inserted), it will stop recording. As soon as the interrupted programme resumes, recording will continue.

Multi-programme and multi-channel recording
The VPS function allows you to record several successive programmes.
Occasionally, these programmes may overlap or conflict with one another. In these cases the following rules apply.

- If you are recording two successive programmes, on the same channel and the first is delayed past the starting time of the second, the first setting is cancelled and the second programme is recorded.
- If you are recording two successive programmes, each on a different channel, and the first is delayed past the starting time of the second, the first will be cancelled, and the VPS function will not be activated for the second programme and the second programme will be recorded beginning at the preset time even if the second programme is delayed.
- If the first programme is delayed so that it is not finished before the second is scheduled to begin, the unit will automatically switch to the second programme at the preset time and the second programme will be recorded.

1-11. USE OF THE SLEEP TIMER

I-6



— To preset the turn-off time of the unit I-6

When recording or playback is being made, preset the turn-off time of the unit.
The recording or playback duration can be set for up to 5 hours by 30 minutes.

Press SLEEP.
Every time you press on SLEEP, the recording/playback duration indication changes as follows:

0:30 → 1:00 → 1:30 → 2:00 →·····→ 5:00 → Current time display

30 min. One hr. One and a half hr. 2 hrs. 5 hrs. Zero hr.

The duration decreases minute by minute as the recording or playback advances. The power will be turned off automatically about 30 seconds after the duration time has elaseped.

ADVANCED EDITING

If another Sony VTR with intercomponent control terminals are used with this unit, use of the supplied Remote Commander brings you much more convenience in editing operations.

You can operate separately the two units (player and recorder) by the supplied Commander.
In addition, once you have set them in tape editing standby mode, you can start and stop playback/recording simultaneously with both units simply by pressing the SYNCHRO EDIT button on the Commander. (= SYNCHRO-EDITING)

Synchro-editing
With this function, playback start/stop of one VTR can be activated in synchronization with recording start/stop of the other VTR.
This function is efficient, for example, when you want to reproduce only the particular portions of a tape onto another tape, or to insert the selected scenes from an original tape onto a pre-recorded tape, etc.

Two methods of synchro-editing are available:

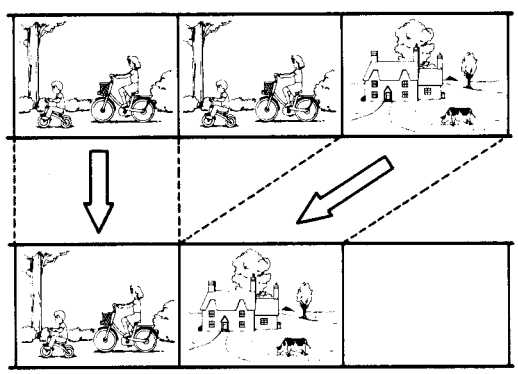
When this unit is used as a player J-1
"Assemble editing" can be made.
On this unit, designate the desired scenes of the original tape.
These scenes can be "assembled" (= recorded) onto the other tape of another VTR.

When this unit is used as a recorder J-2
"Automatic insert editing" can be made.
On this unit, locate a portion of the tape on which any scenes from other original tape must be "inserted".

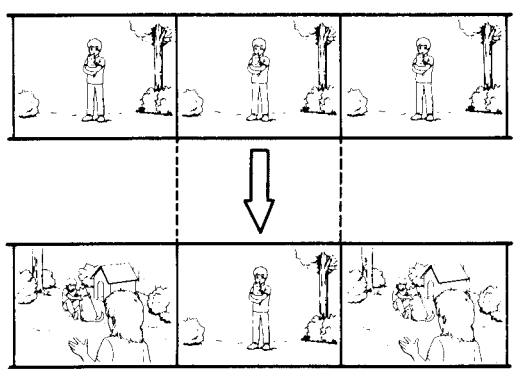
Notes

- Do not use simultaneously the above "synchro-editing" and the insert recording function of the VTR (ex. CCD-V8 series) which is used with this unit.
- If the VTR to be used with this unit is equipped with the CONTROL L connector and the CONTROL S IN jack, make the connection to the CONTROL S IN jack. If the CONTROL L connector is used, the editing may not be made correctly.

J-1

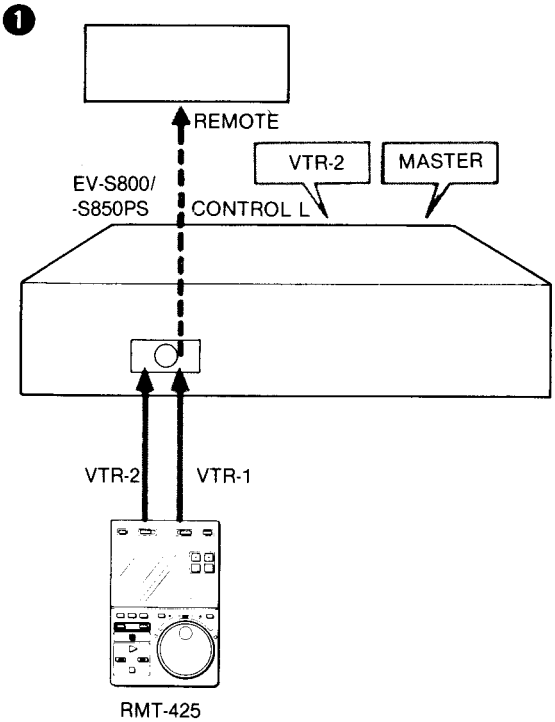


J-2

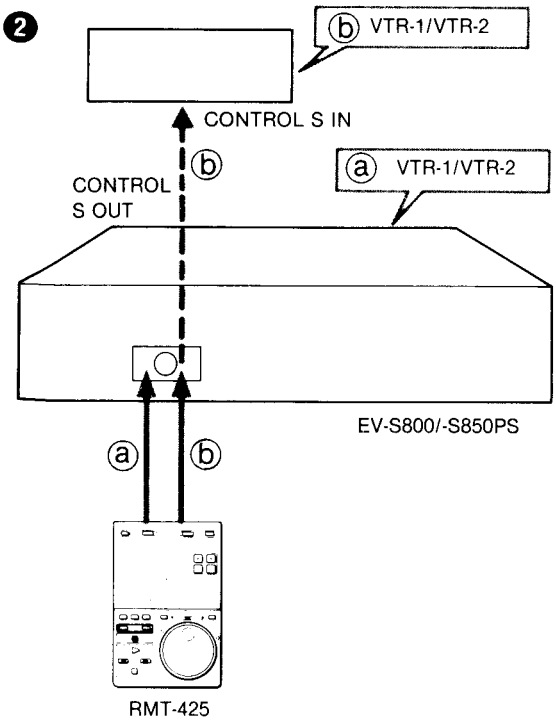


J-3

❶



❷



How are the control signals transmitted? J-3
— About MASTER/SLAVE and COMMAND MODE selectors on this unit —

❶ When the connection is made to the CONTROL L jack of this unit

- **MASTER/SLAVE selector**
  Set to MASTER.

  If this unit is controlled by another equipment (ex: RM-E100V), set to SLAVE.

- **COMMAND MODE selector**
  Set to VTR-2.

Set as above, commands emitted by the Remote Commander in the VTR-2 mode control only this unit and commands in the VTR-1 mode are transmitted to the other VTR through this unit.

❷ When the connection is made to the CONTROL S OUT jack of this unit

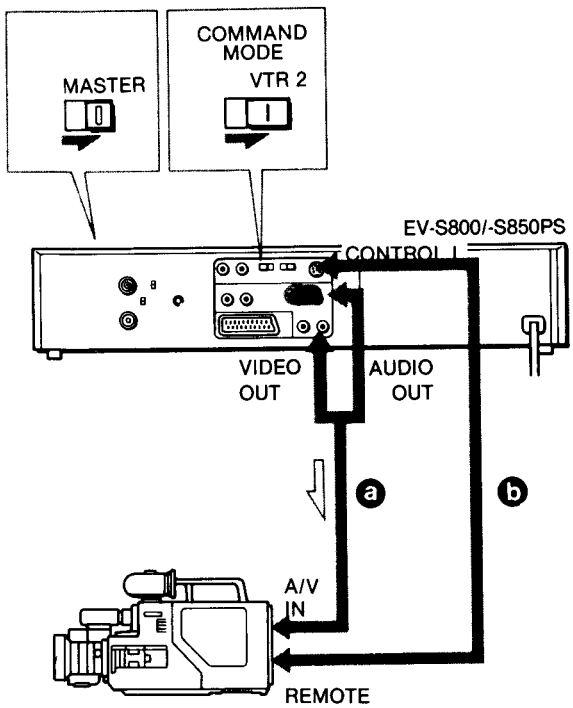
- **COMMAND MODE selector**
  Set to VTR-1 or VTR-2 so that the command mode of this unit is different than the other VTR's command mode.

- **MASTER/SLAVE selector**
  Set to either position. This selector has no effect in this connection.

Set as above, commands emitted by the Remote Commander in a command mode are effective only to one unit and commands in the other command mode control only the other unit.

In both cases (❶ and ❷), point the Commander to the remote sensor of this unit and switch the command mode selector on the Commander to VTR 1 or VTR 2 each time you want to control the player or the recorder in editing operations.

J-4



Editing tapes from this unit to the 8 mm video camera/ cassette recorder having a 5-pin REMOTE connector
— Assemble editing —

Connection

J-4

Connect the CONTROL L connector of this unit to the REMOTE connector of the video camera/cassette recorder. For audio/video connection, see the illustration.

Before operating
On this unit,
set the switches as follows:
- MASTER/SLAVE on the rear panel to MASTER.
- COMMAND MODE in the upper compartment to VTR 2.
- AUDIO MONITOR in the front panel to the appropriate position. (See page 21.)

On another VTR
Set to the LINE IN mode.

Operation

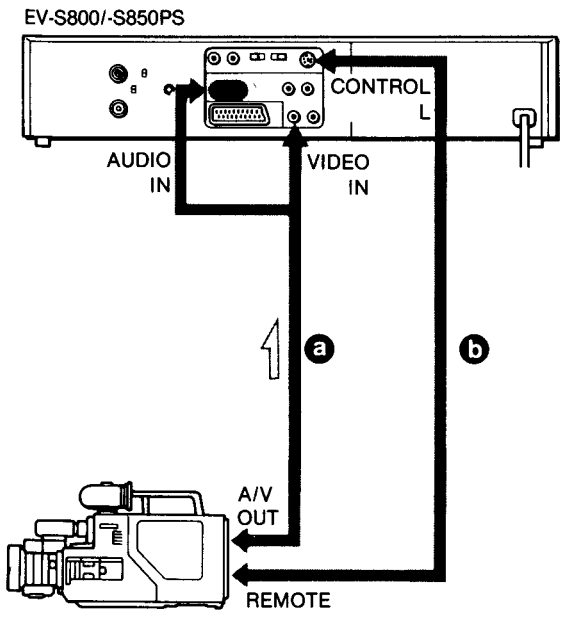
Set the Commander's command mode selector to		Operation
1	VTR 1	1 Play back the tape and decide the starting point of the recording. 2 Set to the recording pause mode.
2	VTR 2	1 Play back the tape and decide the ending point of the recording. 2 Press COUNTER RESET to display "0000" in the window. 3 Rewind the tape and decide the starting point of the recording. 4 Set to the playback pause mode. 5 Press SYNCHRO EDIT. Playback and recording start simultaneously. When the counter reaches "0000" point, editing stops automatically and each unit enters the playback or recording pause mode. Repeat steps 1 to 5.

For accurate setting of the starting/ending point, use JOG/ SHUTTLE.
To stop the on-going editing operation, press SYNCHRO EDIT or STOP with Commander's command mode selector set to VTR 2.

Note

During synchro-editing, you can set this unit to various speed playback modes.
(ex: slow-motion, frame-by-frame pictures etc. can be recorded.)

J-5



Editing tapes from the 8 mm video camera/cassette recorder having a 5-pin REMOTE connector to this unit
— Automatic insert editing —

Connection

J-5

Connect the CONTROL L connector of this unit to the REMOTE connector of the video camera/cassette recorder. For audio/video connection, see the illustration.

Before operating
On this unit
Set the switches as follows:
- MASTER/SLAVE on the rear panel to MASTER.
- COMMAND MODE in the upper compartment to VTR 2.

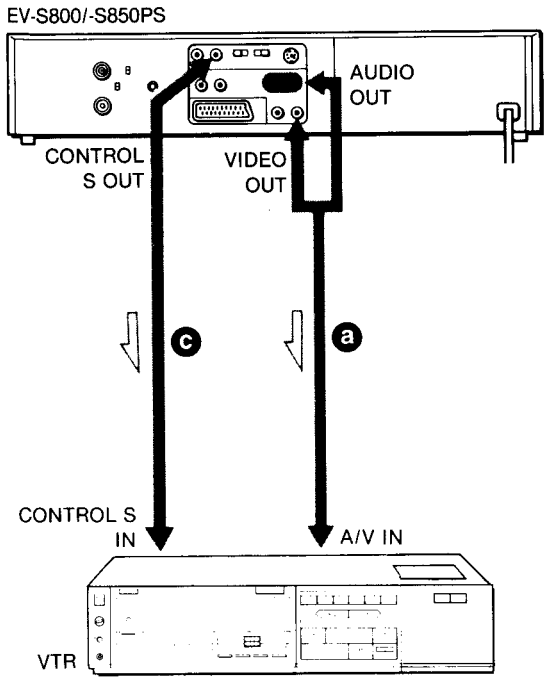
Press INPUT SELECT to display LINE in the window.

Operation

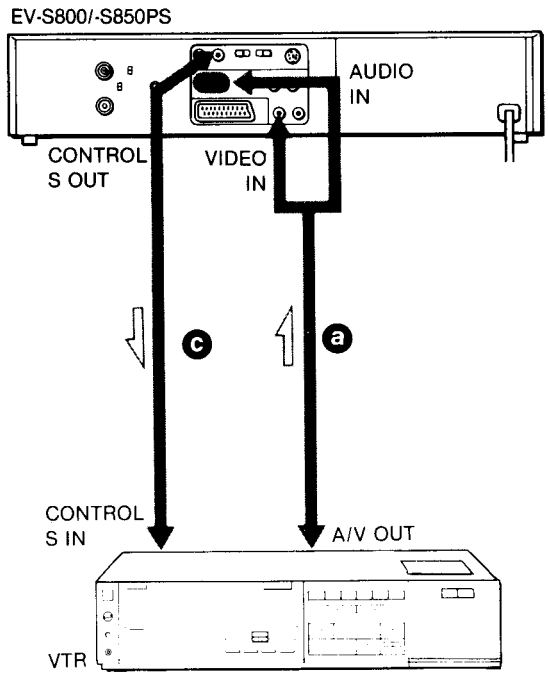
Set the Commander's command mode selector to		Operation
1	VTR 1	1 Play back the tape and decide the starting point of the recording. 2 Set in the playback pause mode.
2	VTR 2	1 Play back the tape and decide the ending point of the recording. 2 Press COUNTER RESET to display "0000" in the window. 3 Rewind the tape and decide the starting point of the recording. 4 Set to the recording pause mode. 5 Press SYNCHRO EDIT. Playback and recording start simultaneously. When the counter reaches the "0000" point, editing stops automatically and each unit enters the playback or recording pause mode.

For accurate setting of the starting/ending point, use JOG/SHUTTLE.
To stop the on-going editing operation, press SYNCHRO EDIT or STOP with Commander's command mode selector set to VTR 2.

J-6



J-7



Editing tapes from this unit to a Betamax or 8 mm VTR having a CONTROL S IN jack — Assemble editing —

Connection

J-6

Connect the CONTROL S OUT jack of this unit to the CONTROL S IN jack of another VTR.
For audio/video connection, see the illustration.

Before operating
On this unit
Set the switches as follows:
- COMMAND MODE in the upper compartment to VTR 1 or VTR 2 according to another VTR's type.
- AUDIO MONITOR in the front panel to the appropriate position. (See page 21 "To select the monitor sound".)

On another VTR
Set to the LINE IN mode.

Operation
Operation is similar to that is described in "Assemble editing" on page 45. However, note that Commander's command mode selector should be set to the same command mode than that of the VTR to be controlled.

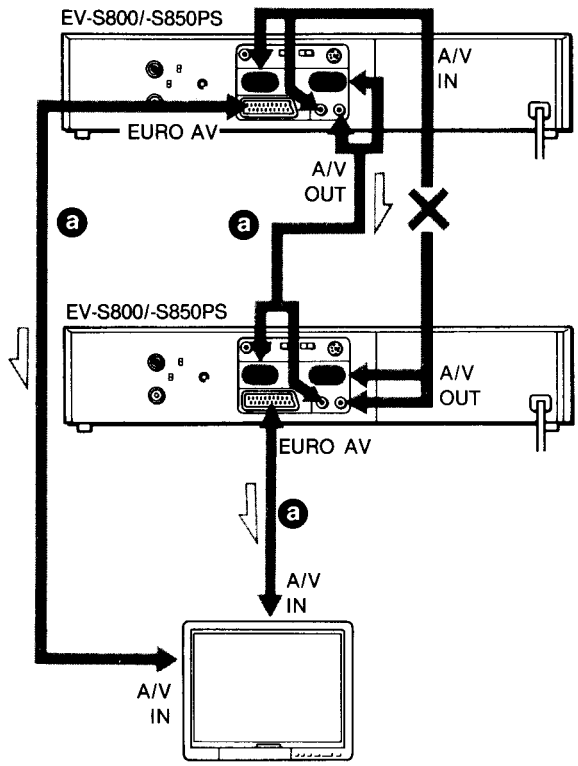
Editing tapes from a Betamax or 8 mm VTR having a CONTROL S IN jack to this unit — Automatic insert editing —

Connection

J-7

Connect the CONTROL S OUT jack of this unit to the CONTROL S IN jack of another VTR.
For audio/video connection, see the illustration.

J-8



Before operating

- Set COMMAND MODE in the upper compartment to VTR 1 or VTR 2 according to another VTR's type. (See page 21 "To select the monitor sound".)
- Press INPUT SELECT to display LINE in the display window.

Operation

Operation is similar to that is described in "Automatic insert editing" on page 38. However, note that Commander's command mode selector should be set to the same command mode than that of the VTR to be controlled.

Caution J-8

Do not make the audio/video in and out connections simultaneously between two VTRs.

Editing tapes from this unit to certain VTRs by using the RM-E100V editing controller J-9

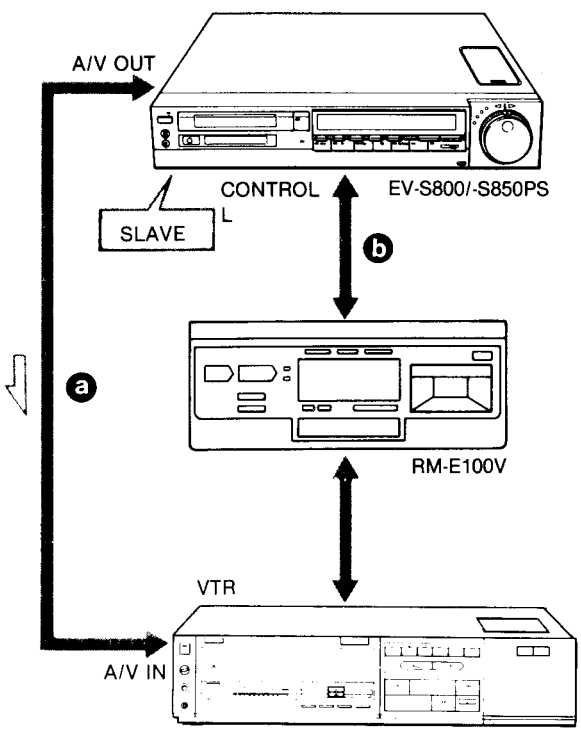
Connect the RM-E100V between the video camera recorder and this unit. With this controller, you will be able to preset the locations of the scenes you want to record (up to 8) in the controller and with a press of a button, these scenes will be recorded by this unit automatically in the order preset.

For details, refer to the instruction manual of the RM-E100V.

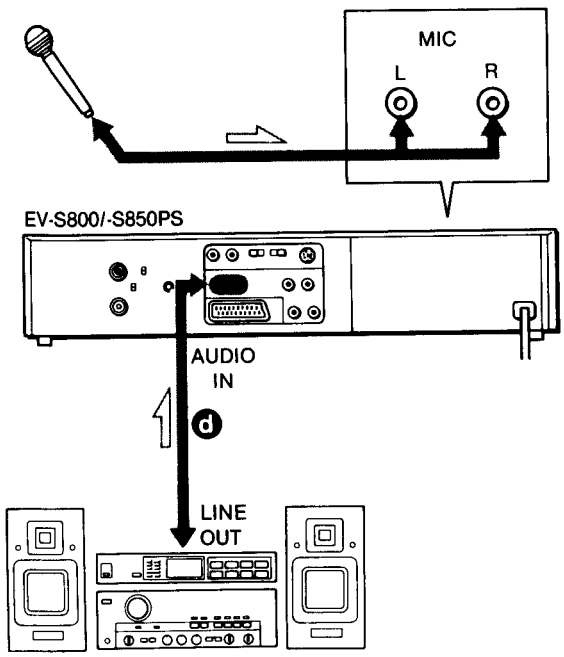
Note

Set MASTER/SLAVE selector of this unit to SLAVE. (COMMAND MODE selector can be set at any position.)

J-9



J-10



AUDIO DUBBING

Connection J-10

To dub signals from the audio system
Connect AUDIO IN of this unit to the REC OUT jacks of the audio system.

To dub signals from the microphones
Connect microphone(s) to MIC L/R.

To dub signals of TV programmes
You can record audio signals from the built-in tuner.

Audio signals are dubbed as follows:

Track / Microphone connected to ...	PCM track	
	L channel	R channel
L jack	Microphone sound	Microphone sound
R jack		Microphone sound
L and R jacks	Microphone sound from the L jack	Microphone sound from the R jack

Operation

1 Set PCM MODE to NORM.
2 Press INPUT SELECT and display:
  LINE to dub audio signals from the audio system and/or microphone(s).
  TUNER to dub signals of TV programmes and/or microphone(s).
3 Press ▶.
4 Decide the starting point of audio dubbing, and press ❚❚/▶|◀.
5 Press AUDIO DUB.
6 Press ❚❚/▶|◀ to release the pause mode, and at the same time start the audio source—such as talking into the microphone, playing back a tape recorder, etc.

Notes

- When the tape which is recorded in the SP mode is used for dubbing, the black band appears in the center and lower positions of the screen.
  When the tape which is recorded in the LP mode is used for dubbing, the black band appears in the lower position of the screen. But the recorded picture will not be affected.
- When the tape which is recorded in the different recording times is used for dubbing, noise will be heard at the point where the recording time is changed.

For PCM recording using a PCM digital audio processor which is not based on the 8 mm PCM format
Set SHRPNESS to the position between the top center and SHARP, and set REC MODE to SP.